GENERAL DYNAMICS/CONVAIR

Dec. 6,1963

INSTRUCTION COVER SHEET

TO: All Holders of
MAINTENANCE MANUAL
Model 30

AMERICAN	CS-61-057
SWISS	CS-61-050
VARIG	CS-61-060
GARUDA	CS-63-026
	CS-61-063

SUBJECT: REVISED PAGES - CHAPTER 54
Revision No. 3, dated Dec. 10/63

The attached pages provide replacement, revised or new pages to your present chapter. 9

The List of Effective Pages reflects current pages this chapter should contain.

BRIEF DESCRIPTION OF CHANGES:

1. Updated illustration showing aft fan duct cross-tie strut and expanded strut adjustment procedure.

2. Revised pylon installation instruction to prevent corrosion due to dissimilar metal contact at pylon attach fittings and bolts.

LIST OF EFFECTIVE PAGES

Chapter 54
NACELLES

CHAPTER	PAGE	DATE	CODE
*54	i	Dec. 10/63	AB-4
	BLANK		
54	1	July 30/62	AB-3
54	2	May 25/62	AB-1
54-0	1	July 30/62	AB-3
54-0	2	July 30/62	AB-3
54-0	3	July 30/62	AB-3
54-0	4	July 30/62	AB-2
54-0	5	July 30/62	AB-2
54-0	6	July 30/62	AB-2
54-0	7	July 30/62	AB-1
54-0	8	July 30/62	AB-1
*54-0	401	Dec. 10/63	AB-2
54-0	402	July 30/62	AB-2
54-0	403	May 25/62	AB-1
54-0	404	May 25/62	AB-1
54-0	405	May 25/62	AB-1
54-0	406	May 25/62	AB-1
*54-0	407	Dec. 10/63	AB-2
54-0	408	May 25/62	AB-1
54-0	409	May 25/62	AB-1
54-0	410	July 30/62	AB-2
54-0	601	May 25/62	AB-2
54-0	602	July 30/62	AB-3
54-1-0	1	July 30/62	AB-2
54-1-0	2	July 30/62	AB-2
54-1-0	3	July 30/62	AB-2
54-1-0	4	July 30/62	AB-2
54-1-0	5	July 30/62	AB-1
54-1-0	6	July 30/62	AB-1
54-1-1	1	Aug. 30/61	AB-1
54-1-1	2	July 30/62	AB-2
54-1-1	3	July 30/62	AB-2
54-1-1	4	July 30/62	AB-1
54-1-1	5	July 30/62	AB-1
	BLANK		
54-1-1	201	Aug. 30/61	AB-1
	BLANK		
54-2-0	1	Aug. 30/61	AB-1
54-2-0	2	Aug. 30/61	AB-1
54-2-0	3	May 25/62	AB-2
*54-2-0	4	Dec. 10/63	AB-2
54-2-0	5	Aug. 30/61	AB-1
54-2-0	6	July 30/62	AB-3
54-2-1	201	May 25/62	AB-2
54-2-1	202	May 25/62	AB-2
54-2-1	203	May 25/62	AB-2
54-2-1	204	May 25/62	AB-2
54-2-1	205	May 25/62	AB-1
54-2-1	206	May 25/62	AB-1
54-2-1	207	May 25/62	AB-1
	BLANK		
54-2-2	201	May 25/62	AB-2
54-2-2	202	May 25/62	AB-2
54-2-2	203	May 25/62	AB-2
54-2-2	204	May 25/62	AB-1
54-2-3	201	May 25/62	AB-1
54-2-3	202	May 25/62	AB-1
54-2-3	203	May 25/62	AB-1
*54-2-3	204	Dec. 10/63	AB-2
54-2-3	205	May 25/62	AB-1
54-2-3	206	May 25/62	AB-1

*Pages revised, added or deleted by this revision.

Chapter 54
NACELLES

TABLE OF CONTENTS

CHAPTER SECTION	SUBJECT	PAGE
54-0	NACELLES	
	General	1
	Pylon-to-Wing Attach Fittings	1
	Engine Mount Locations	8
	Removal/Installation - Pod and Pylon Assembly	401
	Inspection/Check - Pods and Pylons	601
54-1-0	PYLON STRUCTURE	
	General	1
	Leading Edge	1
	Torque Box	1
	Structural Box	1
	Aft Diagonal Strut	6
	Trailing Edge	6
	Pylon-to-Wing Fairings and Panels	6
54-1-1	PYLON STRUCTURAL ACCESS PANELS	
	Description	1
	Removal/Installation - Pylon Structural Access Panels	201
	Removal/Installation - Access Door Sealant	201
54-2-0	POD STRUCTURE	
	General	1
	Pod Fixed Section	1
	Nose Cowl Assembly	1
	Vertical Firewall	3
	Aft Fan Air Inlet Ducts	3
	Pod Doors	3
54-2-1	POD DOORS	
	Removal/Installation - Pod Doors	201
	Removal/Installation - Pod Door Seals	203
	Adjustment/Test - Pod Door Latches	206
54-2-2	POD NOSE COWL	
	Removal/Installation - Pod Nose Cowl	201

TABLE OF CONTENTS (CONT)

CHAPTER SECTION	SUBJECT	PAGE
54-2-3	AFT FAN AIR INLET DUCTS	
	Removal/Installation - Aft Fan Air Inlet Ducts.....	201
	Removal/Installation - Aft Fan Air Inlet Duct Seals....	204
	Removal/Installation - Aft Fan Air Inlet Duct Firewall Seal.....	206

Chapter 54

NACELLES - DESCRIPTION AND OPERATION

1. General

Four individual pods, supported by cantilevered pylons, enclose the engines. The nacelle assemblies (pods and pylons) are underslung from the lower surface of each wing.

Each engine pod consists of six major sections - the upper fixed section, left and right door assemblies, left and right aft fan air inlet ducts, and nose cowl; see Figures 1 and 2. The upper fixed section of the pod is permanently attached to the pylon and serves as a firewall between the pod and pylon. The two side doors are attached to the upper fixed section by eight hinges and form the lower three-fourths portion of the engine pod. In the closed position, both doors are latched to each other along the bottom centerline of the pod and to the nose cowl by flush mounted latches. The doors provide access to the aft fan air inlet ducts and to the accessories mounted on the lower part of the engine. The aft fan air inlet ducts are fastened to the upper fixed section by six hinges. The ducts can be raised for access to accessories mounted on the sides of the engine. In the lowered position the ducts are secured by cross tie struts. An engine nacelle fire warning system is installed on the inner surface of the aft fan air inlet duct, in the upper fixed section of the pod, and in the pylon. The engine pod nose cowl assembly forms the air inlet section through which ram air is ducted directly to the engine compressor and the aft fan air inlet ducts. The nose cowl assembly is attached to the upper fixed section of the pod. The leading edge of the nose cowl and engine stub duct incorporates a scroll for distribution of hot air from the common bleed air source for thermal anti-icing.

*Applicable to Group II airplanes; each engine pod is equipped with a translating cowl which provides an aerodynamic fairing for the thrust reverser. This translating cowl travels forward and aft on tracks mounted on the lower aft section of each pylon to allow thrust reverser operation; see Figures 1 and 2.

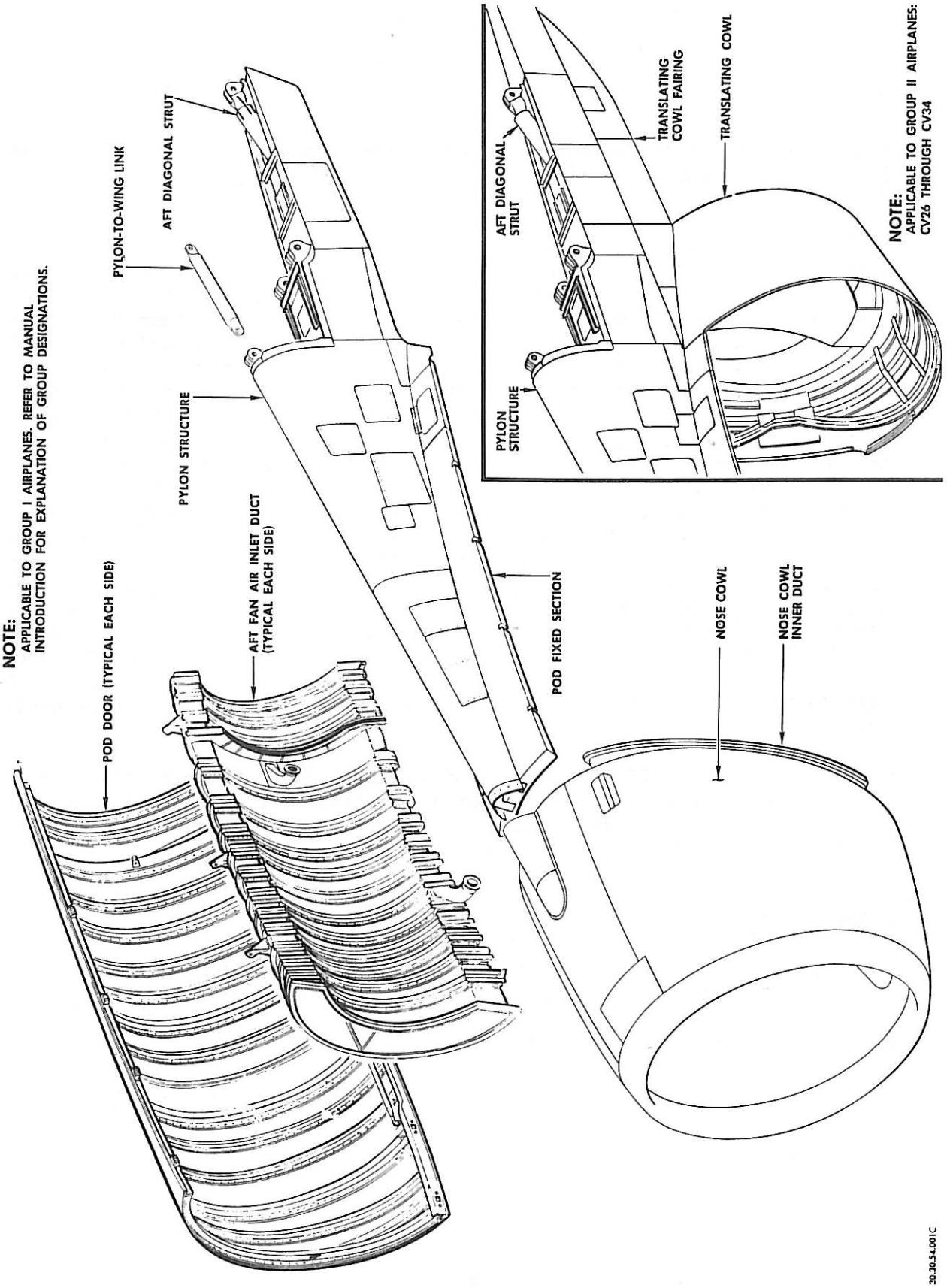
2. Pylon-to-Wing Attach Fittings

Each nacelle (pod and pylon) assembly attaches to the wing at three points. These attach points (see Figures 3 and 4 are as follows:

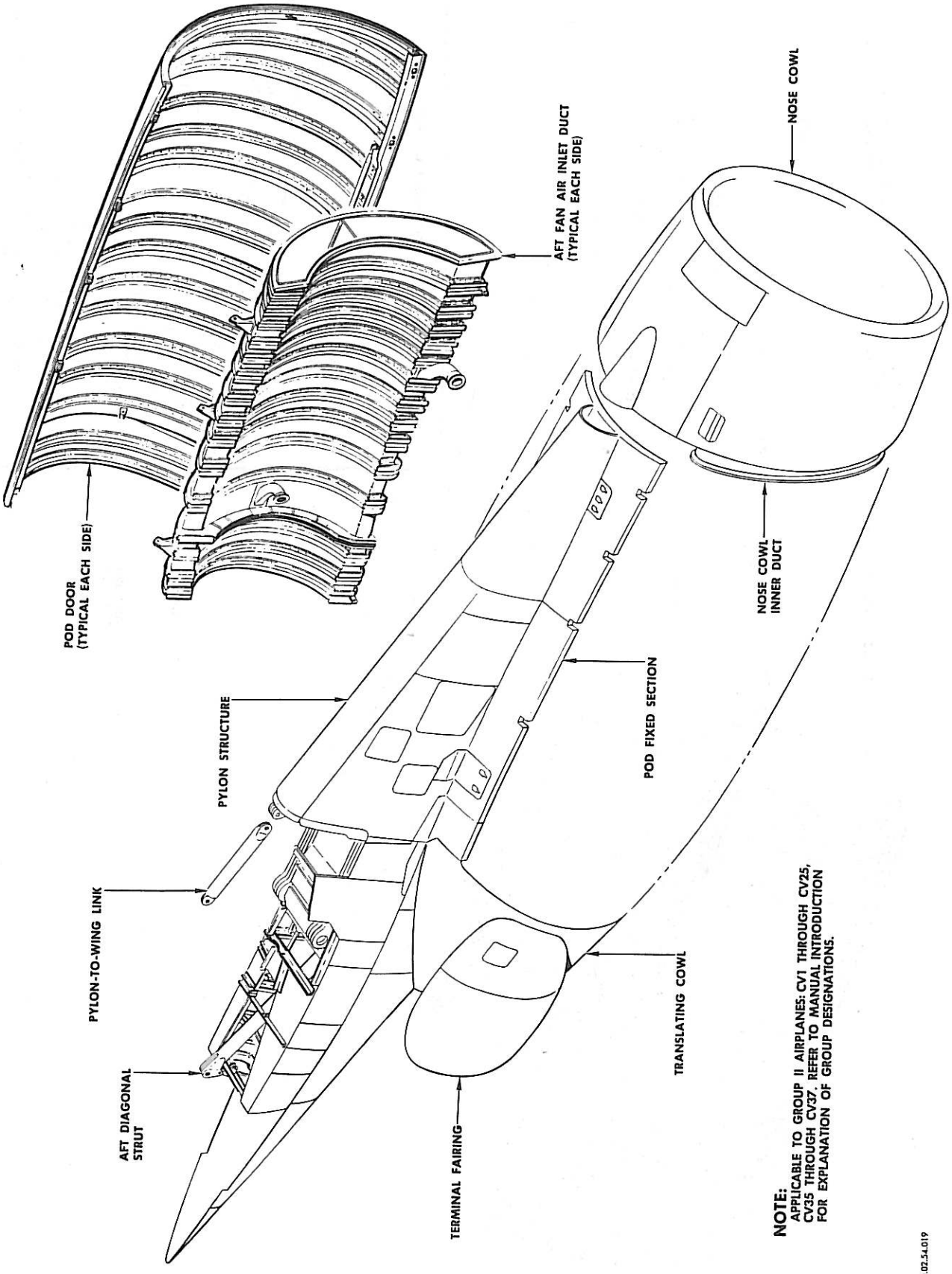
A. Pylon-to-Wing Link (over-wing) Attachment.

The pylon-to-wing link (over-wing) attachment is a clevis-type or two-lug fitting located on the upper forward wing surface. The fitting receives and transmits axial loads from the pylon-to-wing attach link or strut into the upper surface of the wing at the wing front spar.

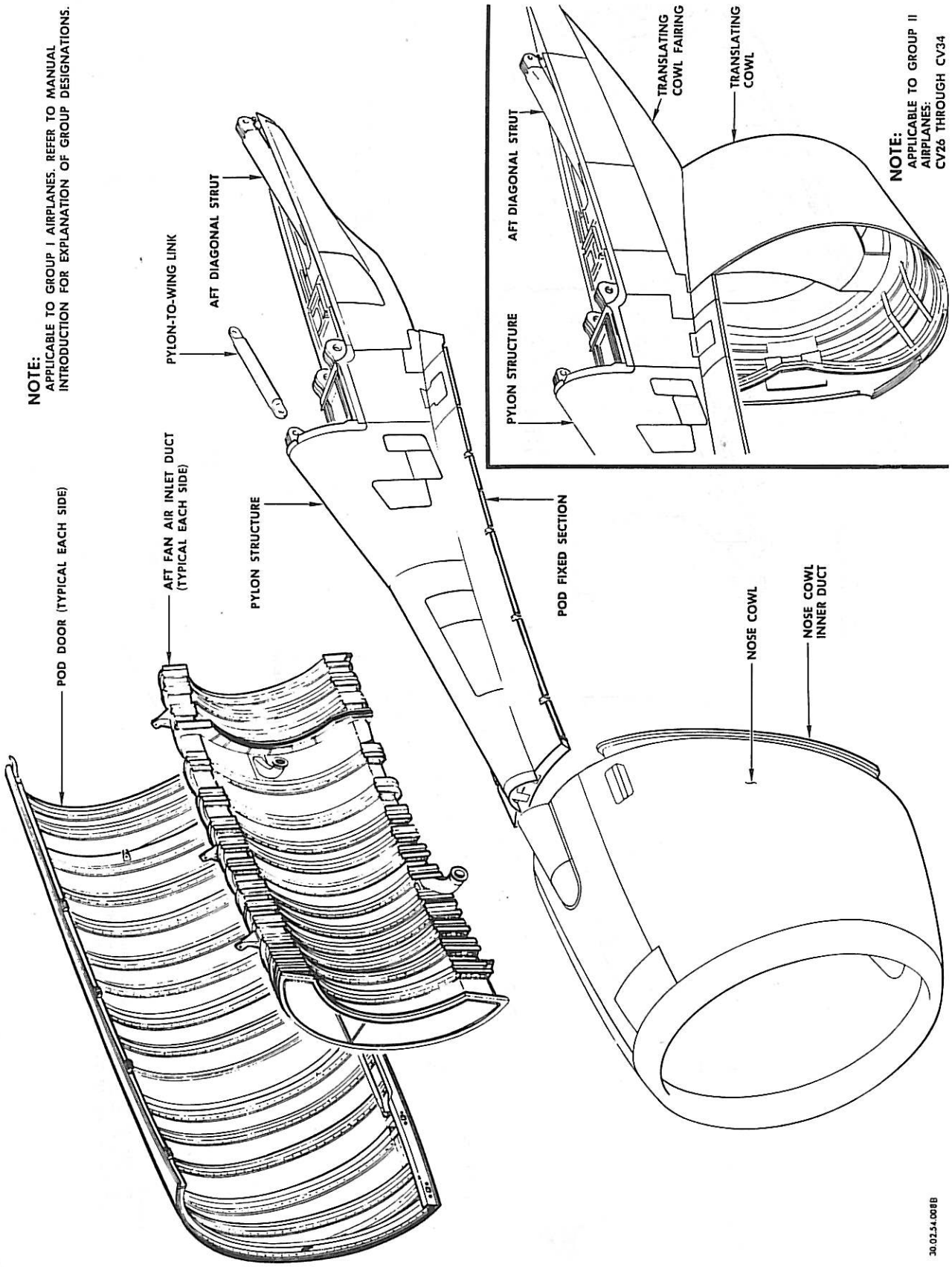
*Refer to Manual INTRODUCTION for Explanation of Group Designations.



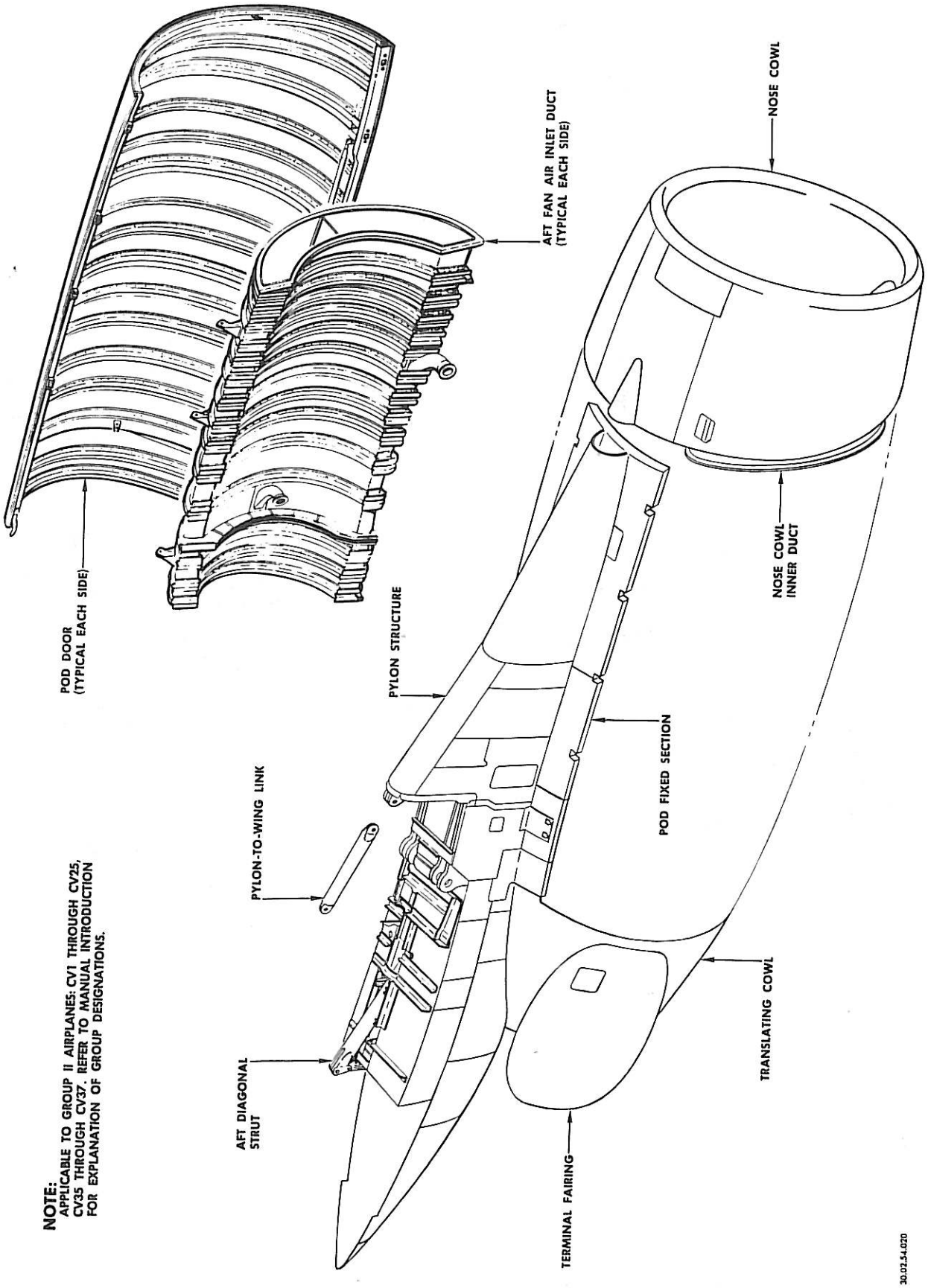
Inboard Pod and Pylon Structure
Figure 1 (Sheet 1 of 2)


POD DOOR (TYPICAL EACH SIDE)
AFT FAN AIR INLET DUCT (TYPICAL EACH SIDE)
NOSE COWL
NOSE COWL INNER DUCT
PYLON STRUCTURE
POD FIXED SECTION
PYLON-TO-WING LINK
AFT DIAGONAL STRUT
TERMINAL FAIRING
TRANSLATING COWL
NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV1 THROUGH CV25, CV35 THROUGH CV37. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.
30.02.54.019

Inboard Pod and Pylon Structure
Figure 1 (Sheet 2 of 2)

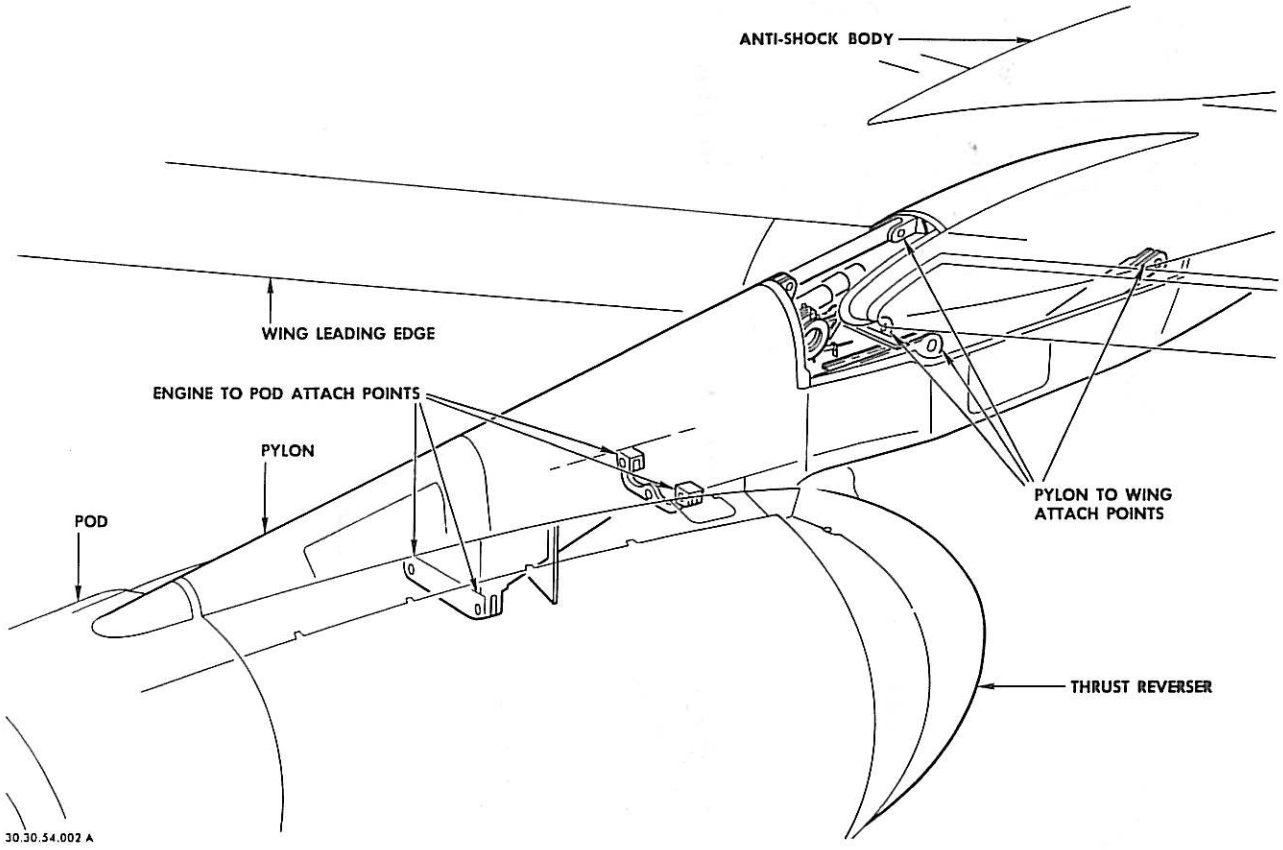


Outboard Pod and Pylon Structure
Figure 2 (Sheet 1 of 2)

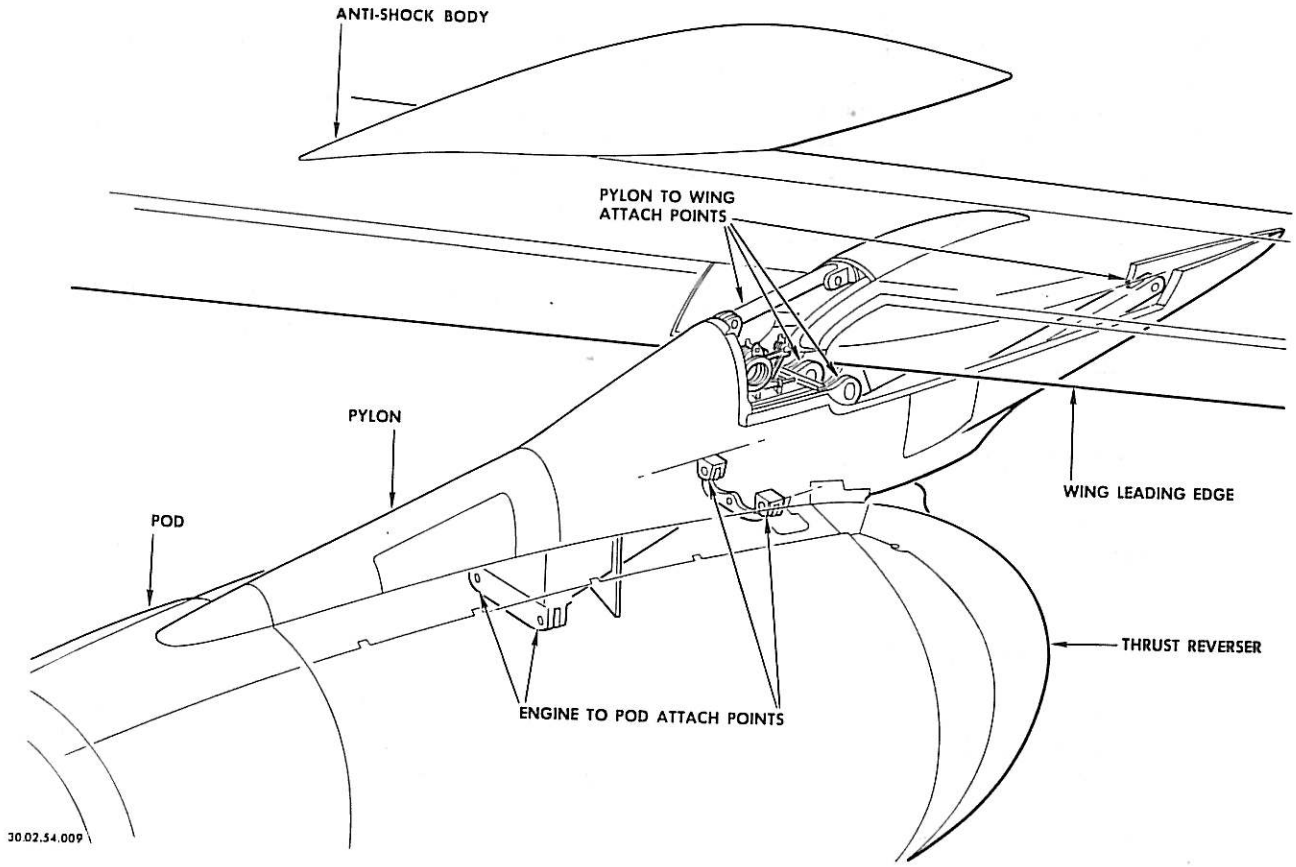


NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV1 THROUGH CV25, CV35 THROUGH CV37. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.

Outboard Pod and Pylon Structure
Figure 2 (Sheet 2 of 2)



Inboard Engine and Pylon Attachment Points
Figure 3



Outboard Engine and Pylon Attachment Points
Figure 4

B. Pylon Structural Box-to-Wing Attachment.

The pylon structural box-to-wing front spar attachment fittings are single lug fittings attached to the front spar lower rail. The fittings receive vertical and drag loads from the pylon structural box and resist rolling and yawing moments of the pod and pylon.

C. Aft Diagonal Strut Attachment.

The pylon aft diagonal strut attachment fittings are single-lug fittings located at the wing center spar for the inboard pylons and the rear spar for the outboard pylons. The fittings receive and transmit axial loads from the pylon into the wing structure.

3. Engine Mount Locations

Four steel engine-mount fittings attach each engine to its pylon (see Figures 3 and 4). The attachment fittings are designed so that they will retain the engine in the event of sudden stoppage at a deceleration rate of from takeoff rpm to zero rotation in one-half second. Provisions are also made for thermal expansion of the engine mounts.

A. Forward Top Centerline Mount.

A forward top centerline engine mount is located in the pod at the engine vertical centerline between the two forward link mounts. This mount receives and transmits thrust and side loads into the pod fixed section.

B. Forward Link Mounts.

Two forward engine links mounts are located in the pod to the left and right of the forward top centerline mount. The link mounts receive and transmit vertical and side loads into the pod fixed section.

C. Aft Centerline Link Mount.

An aft top centerline engine link mount is located in the pod at the engine vertical centerline. The aft link mount receives and transmits vertical and side loads into the pod fixed section.

POD AND PYLON - REMOVAL/INSTALLATION

1. Removal/Installation Pod and Pylon Assembly (see Figure 401)

A. General.

Except as noted, the pod and pylon removal/installation procedures are typical right-hand and left-hand, inboard and outboard. If all four pods and pylons are to be removed at the same time, remove the inboard assemblies first and the outboard assemblies last. If airplane is to be towed after removal of pod and pylon assemblies, refer to Chapter 9 TAXIING & TOWING, for ballast.

B. Equipment Required.

(1) Two hydraulic tripod wing jacks, and other equipment for supporting the wings as listed in Chapter 7, LIFTING & SHORING.

(2) Handling and hoisting fixture capable of raising and lowering the pod and pylon assembly as shown in Figure 401, or equivalent.

(3) Stand or supporting equipment to hold the pod and pylon assembly after removal.

(4) Equipment as listed in Chapter 71, POWER PLANT - GENERAL; if engine is to be removed from pod.

(5) Fuel drain equipment as listed in Chapter 28, FUEL.

(6) Hydraulic fluid drain equipment as listed in Chapter 29, HYDRAULICS.

(7) Bleed air duct removal equipment as listed in Chapter 36, PNEUMATICS.

(8) Equipment as required for wing leading edge fairing and leading edge-to-pylon stub removal as listed in Chapter 57, WINGS.

(9) Ballast equipment as listed in Chapter 9, TAXIING AND TOWING; if airplane is to be towed after removal of the pod and pylon assembly.

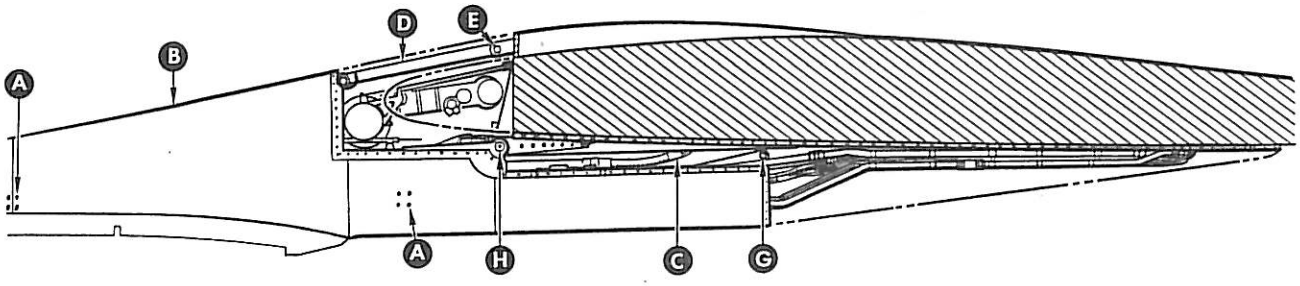
(10) Torque wrench calibrated in inch-pounds.

(11) Corrosion Preventive, Specification MIL-C-16173, Grade 1.

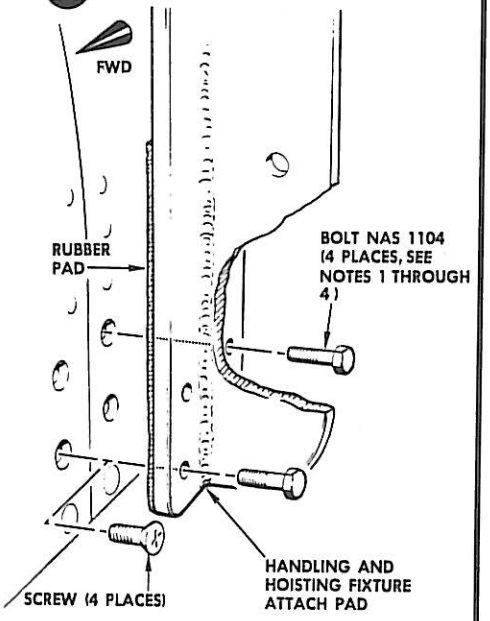
(12) Grease, Specification MIL-L-7711.

(13) Primer, Specification MIL-P-8585.

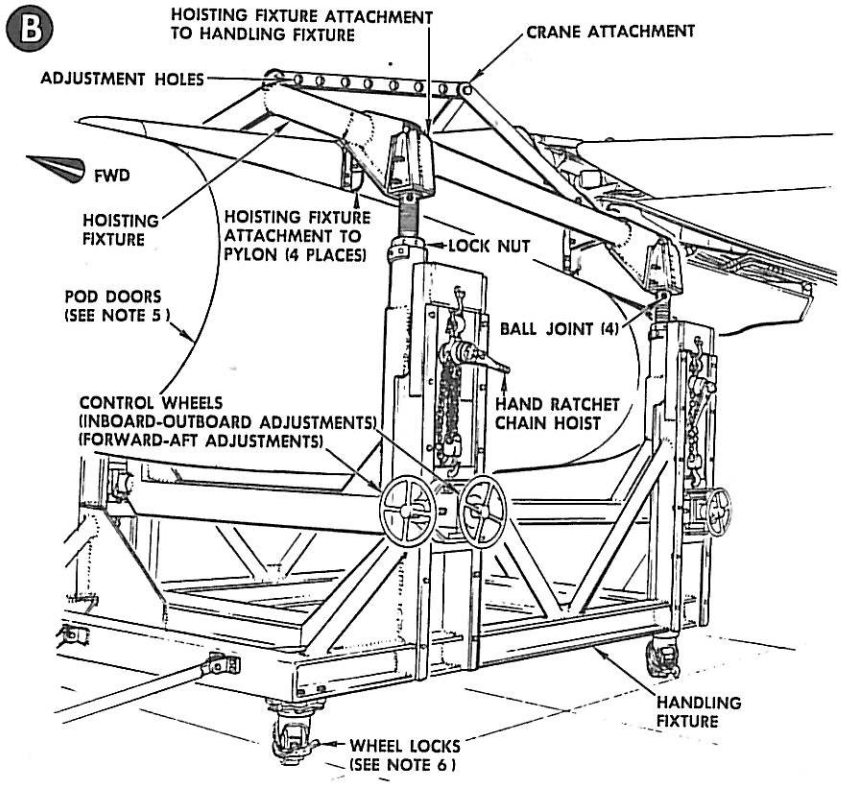
(14) Methyl Ethyl Keytone (M.E.K.), Federal Specification TT-M-261, or equivalent.



INBOARD PYLON SHOWN—OUTBOARD PYLON SIMILAR


A VIEW LOOKING DOWN AND AFT
FWD
RUBBER PAD
BOLT NAS 1104 (4 PLACES, SEE NOTES 1 THROUGH 4)
SCREW (4 PLACES)
HANDLING AND HOISTING FIXTURE ATTACH PAD

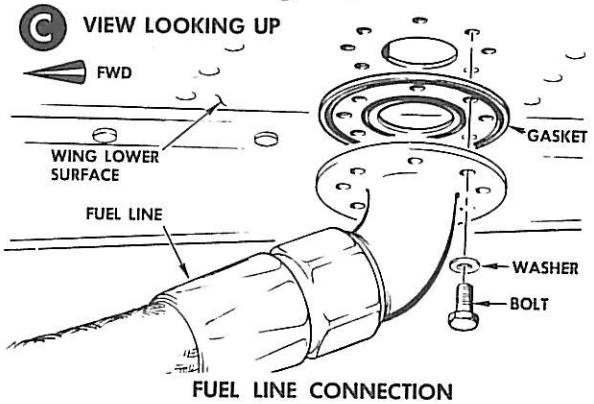
HANDLING AND HOISTING FIXTURE ATTACH PAD (4 PLACES, FORWARD PAD SHOWN—AFT PADS SIMILAR)



HANDLING AND HOISTING FIXTURE

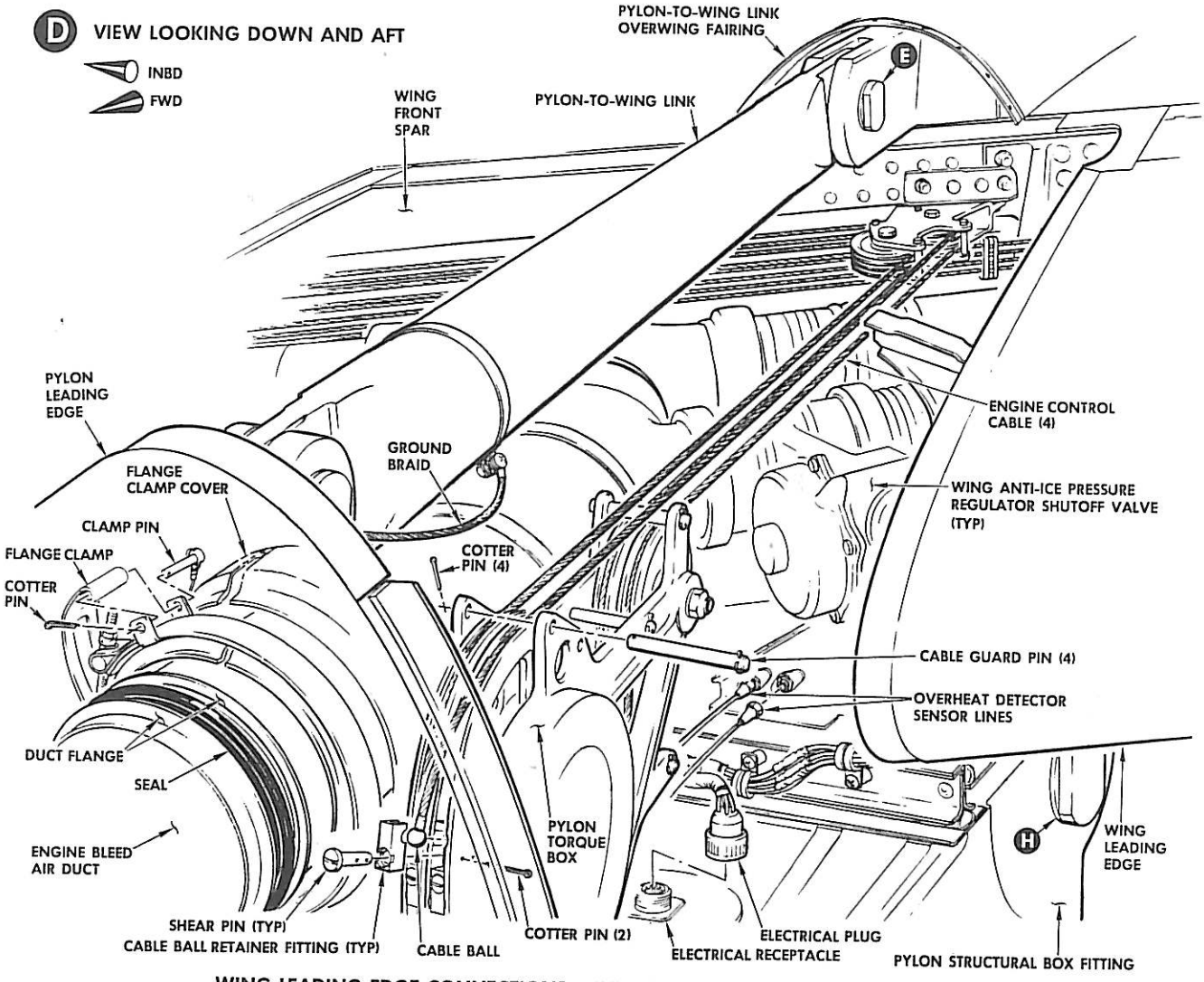
NOTE:

1. BOLT GRIP LENGTH FOR FORWARD PAD ATTACH BOLTS 0.568 INCH.
2. BOLT GRIP LENGTH FOR AFT PAD FORWARD ATTACH BOLTS 0.740 INCH.
3. BOLT GRIP LENGTH FOR AFT PAD AFT ATTACH BOLTS 0.705 INCH.
4. TORQUE VALUE OF PAD ATTACH BOLTS, 30 TO 40-INCH POUNDS.
5. IF ENGINE REMOVAL IS REQUIRED, REMOVE ENGINE BEFORE PLACING HANDLING FIXTURE INTO PLACE.
6. DO NOT LOCK WHEELS DURING INSTALLATION. FIXTURE MUST BE ALLOWED TO FLOAT TO PREVENT LOAD APPLICATION TO THE ATTACHMENT FITTINGS.

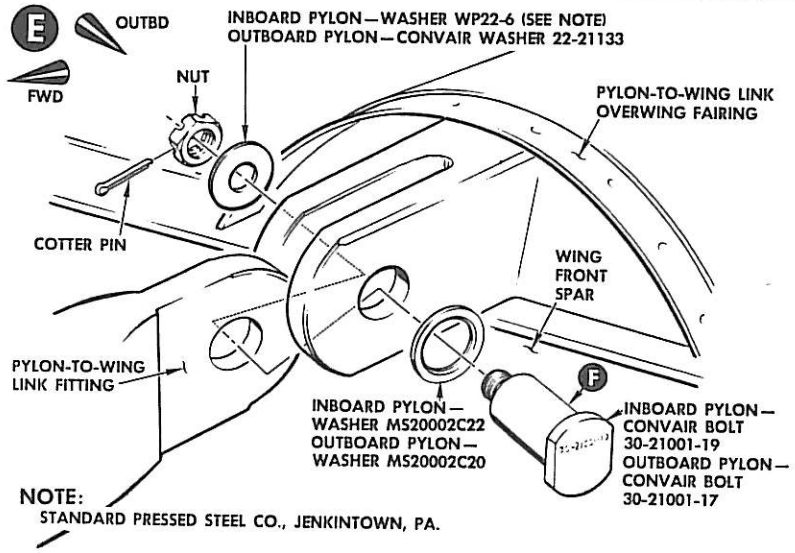


FUEL LINE CONNECTION

30.02.54.012-1A

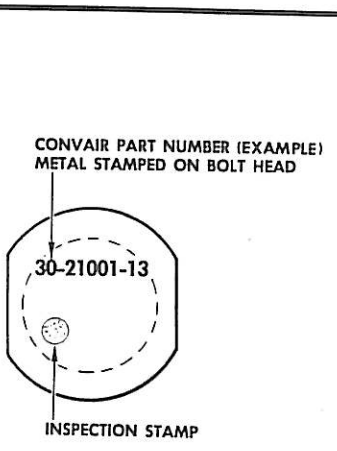


WING LEADING EDGE CONNECTIONS —INBOARD SHOWN—OUTBOARD SIMILAR

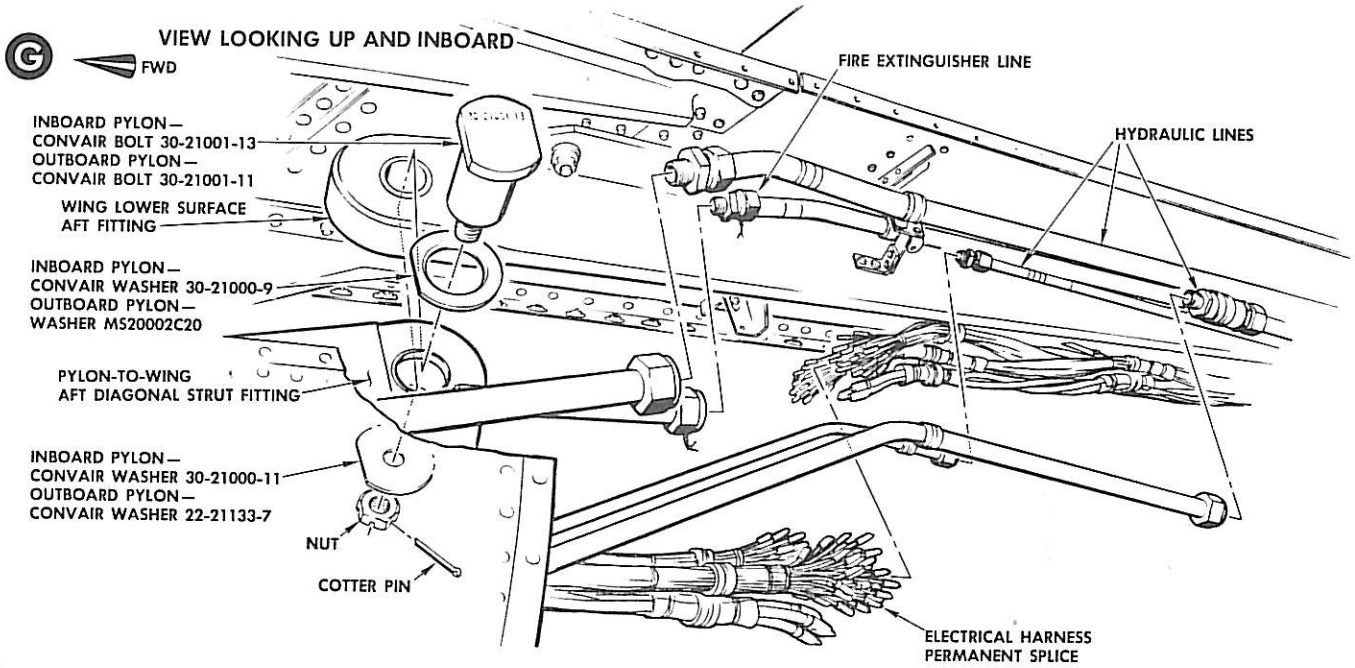


30.02.54.012-2

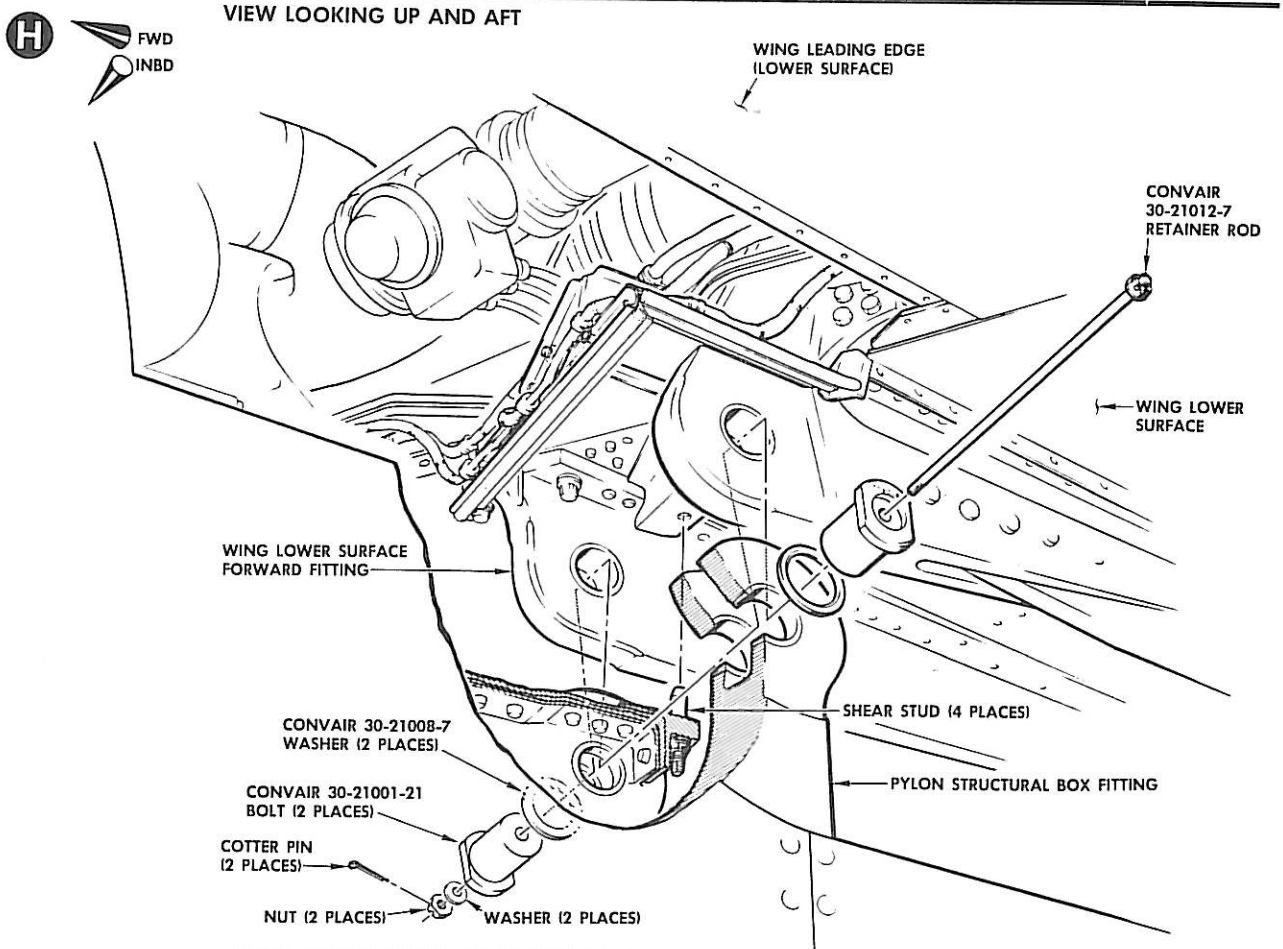
PYLON-TO-WING LINK FITTING



TYPICAL CONVAIR BOLT IDENTIFICATION



UNDERWING CONNECTIONS—INBOARD SHOWN—OUTBOARD SIMILAR



30.02.54.012-3

WING LOWER SURFACE FORWARD FITTING —INBOARD SHOWN—OUTBOARD SIMILAR

C. Preparation.

(1) Prepare Airplane.

(a) Place wing jacks in place as directed in Chapter 7, LIFTING & SHORING, to prevent the possibility of the airplane listing and to steady the airplane during alignment of the pylon attach fittings.

NOTE: Do not attempt to raise the airplane with the wing jacks; raise jack high enough to obtain a snug fit at the jack pad.

(b) Remove doors, panels, and fairings as required; refer to Chapter 12, SERVICING.

(c) Remove pod doors as directed in 54-2-1; only if engine removal from pod is required.

(d) Remove aft fan air inlet ducts as directed in 54-2-3; only if engine removal from pod is required.

(e) Close fuel tank line shutoff valves, corresponding to the pod/pylon(s) to be removed, as directed in Chapter 28, FUEL.

(f) Close crossfeed valves, corresponding to the pod/pylon(s) to be removed as directed in Chapter 28, FUEL.

(g) Close bleed air emergency wing isolation valves as directed in Chapter 36, PNEUMATICS.

(h) Reduce hydraulic pressure in the system as directed in Chapter 29, HYDRAULICS.

(i) Open all circuit breakers and attach warning tags.

(2) Disconnect Related Systems in Pod/Pylon Area.

CAUTION: CAP OPEN ENDS OF ALL TUBING AND DUCTING.

(a) Remove engine as directed in Chapter 71, POWER PLANT - GENERAL; only if engine removal from pod is required.

(b) Identify and tag electrical wires in harnesses each side of permanent splices in the pylon tunnel area as shown in Figure 401.

(c) Cut electrical wires. (Tape bare ends of wires.)

NOTE: Cut splice as close as possible to end of insulation to prevent excessive shortening of wires.

(d) Disconnect hydraulic lines (pressure, supply, and return) in the pylon tunnel area as shown in Figure 401.

(e) Drain residual fluid into a suitable container.

(f) Disconnect engine fuel supply line fitting from the lower wing surface in the pylon tunnel area as shown in Figure 401.

(g) Drain residual fuel into a suitable container.

(h) Disconnect fire extinguisher line in the pylon tunnel area as shown in Figure 401.

(i) Disconnect engine bleed air duct forward of the wing front spar as directed in Chapter 36, PNEUMATICS.

(j) Disconnect overheat detector sensor lines forward of the wing front spar as shown in Figure 401.

(k) Disconnect electrical plug forward of wing front spar as shown in Figure 401.

(l) Disconnect engine control cables in the pylon torque box as directed in Chapter 76, ENGINE CONTROLS.

D. Remove Pod and Pylon Assembly (see Figure 401).

NOTE: To insure proper installation of hardware: identify, bag and tag hardware as it is removed; stating on tag the location from which removed.

(1) Install handling and hoisting fixture attach pads to pylon (4 places). Bolts must be of exact shank length so as not to damage plate nuts in pylon; see Figure 401.

(2) Attach handling and hoisting fixture to attach pads on pylon as shown in Figure 401.

(3) Adjust handling and hoisting fixture to receive the load from pylon-to-wing attach fittings.

(4) Raise or lower handling and hoisting fixture until bolt can be removed from fitting with hand pressure or a light tap with a rubber mallet. Repeat the procedure for each attachment as required.

CAUTION: EXCESSIVE HAMMERING OR FORCING OF BOLT MAY DAMAGE THE FITTING OR BOLT.

(5) Remove pylon-to-wing link fitting from wing fitting at top of wing front spar.

(6) Remove pylon-to-wing aft diagonal strut from wing lower surface aft fitting.

(7) Remove pylon structural box fitting from wing lower surface forward fitting below wing front spar.

(8) Carefully lower the pod and pylon assembly to clear the wing lower surface and pylon attach fitting; make sure that the shear studs (4) drop clear of holes in bracket below wing front spar.

E. Install Pod and Pylon Assembly (see Figure 401).

CAUTION: COIL ELECTRICAL HARNESS AND SECURE ALL LOOSE TUBING TO PROTECT FROM DAMAGE.

(1) Repeat steps D (1), (2), and (3).

(2) At all pylon-to-wing attach points the following procedures must be accomplished:

(a) Prior to installation, clean all bolts and attach fitting holes with a clean cheese cloth moistened with M.E.K. Lightly coat bolt shanks and holes in fittings with material specified in B.(11) or B.(12) or B.(13).

CAUTION: HOLES AND BOLTS MUST BE FREE OF ALL ABRASIVE MATERIALS.

(b) Adjust handling fixture until bolt can be installed in fitting with hand pressure or light tap with a rubber mallet.

CAUTION: EXCESSIVE HAMMERING OR FORCING OF BOLT MAY DAMAGE BOLT OR HOLE IN FITTING.

(c) Install countersunk washers under bolt heads as shown in Figure 401.

CAUTION: COUNTERSUNK WASHERS MUST BE INSTALLED UNDER BOLT HEADS TO PREVENT THE APPLICATION OF LOADS DIRECTLY ON RADIUS OF BOLT HEADS.

(d) Threads on bolts must be dry and free from oil, grease, sealer, etc., to insure accurate torque values.

(e) After bolts are installed, overcoat bolt surfaces with corrosion preventive to seal all pylon-to-wing attaching hardware and faying surfaces.

(3) Install pylon-to-wing aft diagonal strut to wing lower surface aft fitting as shown in Figure 401.

(a) Accomplish steps (2) (a), (b), (c) and (d).

(b) Install attaching hardware as shown in Figure 401.

(c) Torque nut 5 to 10 inch-pounds.

(d) Accomplish step (2) (e).

(4) Install pylon structural box fitting to wing lower surface forward fitting as shown in Figure 401.

(a) Accomplish steps (2) (a), (b), (c), and (d).

(b) Install retainer rod and attaching hardware as shown in Figure 401.

(c) Torque bolts 5 to 10 inch-pounds.

(5) Install pylon-to-wing link fitting to wing fitting at top of wing front spar as shown in Figure 401.

(a) Accomplish steps (2) (a), (b), (c), and (d).

(b) Install attaching hardware as shown in Figure 401.

(c) Torque nut 5 to 10 inch-pounds.

(d) Accomplish step (2) (e).

(6) Disconnect handling and hoisting fixture from attach pads on pylon.

(7) Move handling and hoisting fixture away from pod and pylon assembly.

(8) Remove handling and hoisting fixture attach pads from pylon.

(9) Connect related systems:

(a) Connect engine control cables in the pylon torque box as directed in Chapter 76, ENGINE CONTROLS.

(b) Accomplish adjustment/test as directed in Chapter 76, ENGINE CONTROLS.

(c) Connect electrical plug forward of wing front spar; refer to Figure 401.

(d) Connect overheat detector sensor line forward of the wing front spar.

(e) Connect bleed air ducting forward of the front spar as directed in Chapter 36, PNEUMATICS.

(f) Connect fire extinguisher line in the pylon tunnel area and safety wire.

(g) Connect engine fuel supply line fitting to the wing lower surface; refer to Figure 401.

(h) Connect hydraulic lines (pressure, supply, and return) in the pylon tunnel area.

(i) Make permanent splices to electrical harnesses in the pylon tunnel area; refer to the 990 Wiring Diagram Manual, Notes section, for permanent splice procedures.

(j) If engine removed from pod, install engine as directed in Chapter 71, POWER PLANT - GENERAL.

(10) Restore Airplane to Original Condition:

(a) Close all circuit breakers and remove warning tags.

(b) Pressurize hydraulic system as directed in Chapter 29, HYDRAULICS.

(c) Open bleed air emergency wing isolation valves as directed in Chapter 36, PNEUMATICS.

(d) Open crossfeed valves as directed in Chapter 28, FUEL.

(e) Open fuel tank line shutoff valves as directed in Chapter 28, FUEL.

(f) Install doors, panels, and fairings removed; refer to Chapter 12, SERVICING, for numbers, sizes, and types of fasteners.

(g) If aft fan air inlet ducts removed, install as directed in 54-2-3.

(h) If pod doors removed, install as directed in 54-2-1.

(i) Remove wing jacks.

(11) Accomplish adjustment/test as follows:

SYSTEM	CHAPTER REFERENCE
Engine Operation	71, POWER PLANT-GENERAL
Engine Tachometer Indication	77, ENGINE INDICATING
Engine Oil Temperature	77, ENGINE INDICATING
Engine Air Anti-Ice	75, AIR
Engine Bleed Air	36, PNEUMATICS
Engine Ground Cooling	77, ENGINE INDICATING
Engine Fuel Control	28, FUEL
Engine Oil Pressure	77, ENGINE INDICATING
Fuel Flow Indication	77, ENGINE INDICATING
Engine Start and Ignition	74, IGNITION
Oil Quantity Indication	77, ENGINE INDICATING
Engine Fire Extinguisher	26, FIRE PROTECTION
Hydraulic Pressure Low	29, HYDRAULICS
Engine Fuel Pump Warning	77, ENGINE INDICATING
Reverse Thrust Indication	77, ENGINE INDICATING
Fuel Temperature Indicator	77, ENGINE INDICATING
AC Power Circuit Generators	24, ELECTRICAL POWER
Hydraulic Valve Control	29, HYDRAULICS
Engine Fire Detection	26, FIRE PROTECTION
Pressure Ratio Indication	77, ENGINE INDICATING
Engine Oil Pressure Low Warning	77, ENGINE INDICATING
Constant Speed Drive	24, ELECTRICAL POWER
Aft Fan Tachometer Indication	77, ENGINE INDICATING
Engine Exhaust Gas Temperature Indication	77, ENGINE INDICATING
Translating Cowl	78, EXHAUST

POD AND PYLON - INSPECTION/CHECK

1. Inspection/Check - Pods and Pylons

A. Check the following:

(1) Pod door and cowl pod door latches for cracks, corrosion, positive engagement and ease of latching.

(2) Pod door compression-type latch receptacles for cracks, corrosion, foreign matter, and loose or missing fittings.

(3) Pod door hinges for ease of operation, cracks, corrosion, foreign matter, and loose or missing fittings.

(4) Pod door seals for tears, cuts, and excessive abrasion.

(5) Pod door vents and pod door drain system installation for cracks, damaged tubing, security, loose or missing clamps and fittings, foreign matter, and corrosion.

(6) Pod door vent seals for tears, cuts, and excessive abrasion.

(7) Pod door hold-open struts for security, cracks, corrosion, and loose or missing parts. Check the struts for security and clearance in the stowed position.

(8) Pod door interior and exterior for cracks, corrosion, and excessive dents or damage.

(9) Aft fan inlet duct hinges for ease of operation, cracks, corrosion, foreign matter, and loose or missing fittings.

(10) Aft fan inlet duct seals for tears, cuts, and excessive abrasion.

(11) Aft fan inlet duct and pod door electrical bonding for security, breaks, abrasion, and corrosion.

(12) Aft fan inlet duct fire detection loops for abrasion, oil damage, breaks, security, and loose or missing fittings.

(13) Aft fan inlet duct cross-tie struts for security in closed position, cracks, foreign matter, corrosion, and loose or missing fittings.

(14) Aft fan inlet duct hold-open links for security in the open position, cracks, foreign matter, corrosion, and loose or missing fittings.

(15) Aft fan inlet duct interior and exterior for cracks, foreign matter, corrosion, and excessive dents and damage.

(16) Pod and pylon access doors for loose or missing fasteners.

(17) Engine pod nose cowl for security, cracks, missing rivets, and excessive dents and gaps.

(18) Engine pod fixed section and pylon fairing for cracks, missing rivets, corrosion, and excessive dents and gaps.

(19) Pod door gap and mismatch tolerances in accordance with Chapter 51, STRUCTURES - GENERAL.

*(20) Applicable to Group II airplanes; spring loaded auxiliary air (tertiary) doors on aft end of pod doors for freedom of operation.

(21) Paint finishes for cleanliness and condition in accordance with Chapter 51, STRUCTURES - GENERAL, for cleaning and painting procedures.

*Refer to Manual INTRODUCTION for Explanation of Group Designations.

PYLON STRUCTURE - DESCRIPTION AND OPERATION

1. General

The pylon is the structural member between the engine pod and the wing. The pylon structure consists of the leading edge, torque box, structural box, aft diagonal strut, and trailing edge; see Figures 1 and 2. Aluminum alloy, steel, and titanium are used in pylon construction. The torque box connects to the over-wing attach fitting. The structural box section attaches to the wing front spar. The aft diagonal strut attaches to the wing center spar on the inboard pylons and to the rear spar on the outboard pylons. Fairings and panels enclose the area between the pylon structure and the wing. Each pylon compartment is draft sealed, vented, and drained. A ram air inlet scoop, located in the forward end of the pylon, ports cooling air into the engine bleed air valve plenum chamber.

*Applicable to Group II airplanes; the under-wing portion of each pylon incorporates an underwing pylon fairing, which provides tracks to allow forward and aft movement of the translating cowl.

2. Leading Edge

The leading edge section extends from the nose cowl attachment point to the forward end of the pylon torque box. The leading edge is constructed of 2024 and 7075 aluminum alloy. Access panels are provided on the left side for access to the fluid and electric disconnect panels. A window is provided on the right side for viewing the engine oil quantity indicator.

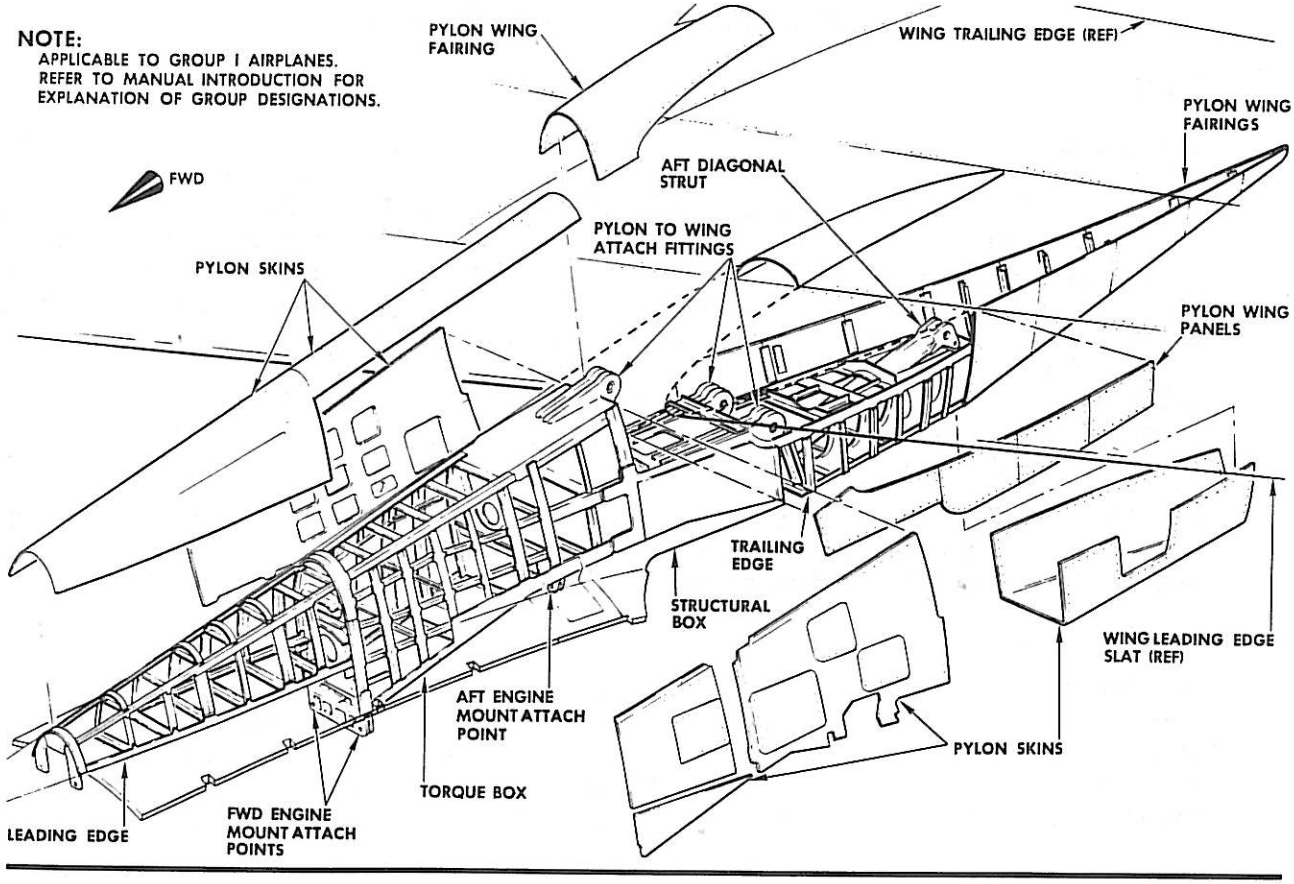
3. Torque Box

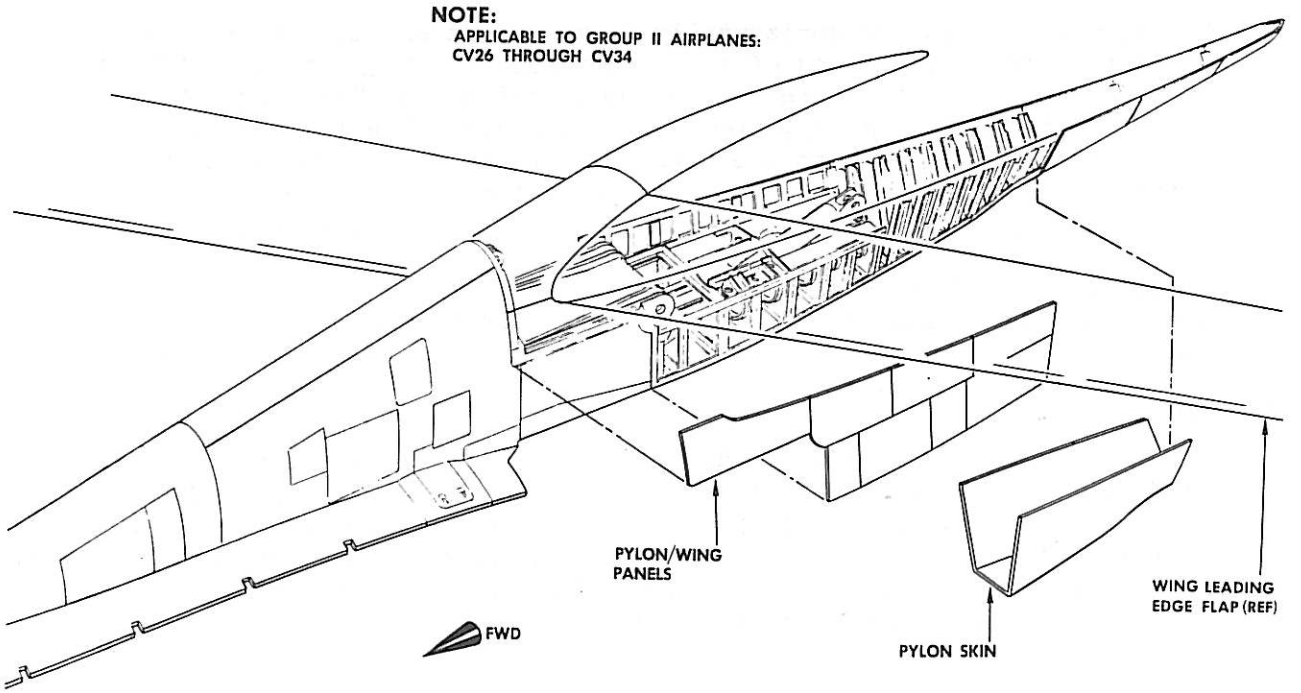
The torque box extends horizontally from the aft end of the leading edge section to the forward end of the structural box and vertically from the pod fixed section structure to the top of the wing. The torque box is constructed of aluminum alloy, steel, and titanium. The forward diagonal strut attaches the torque box to the wing front spar. The forward and aft engine mounts attach to the torque box section of the pylon. The torque box transmits loads from the engine mounts into the wing. Access panels provide access to equipment installed inside the torque box. A window is provided in the right forward access panel for viewing the fire extinguishing agent container charge indicator. A fire extinguishing agent container overflow discharge port is located just forward of the right rear access panel.

4. Structural Box

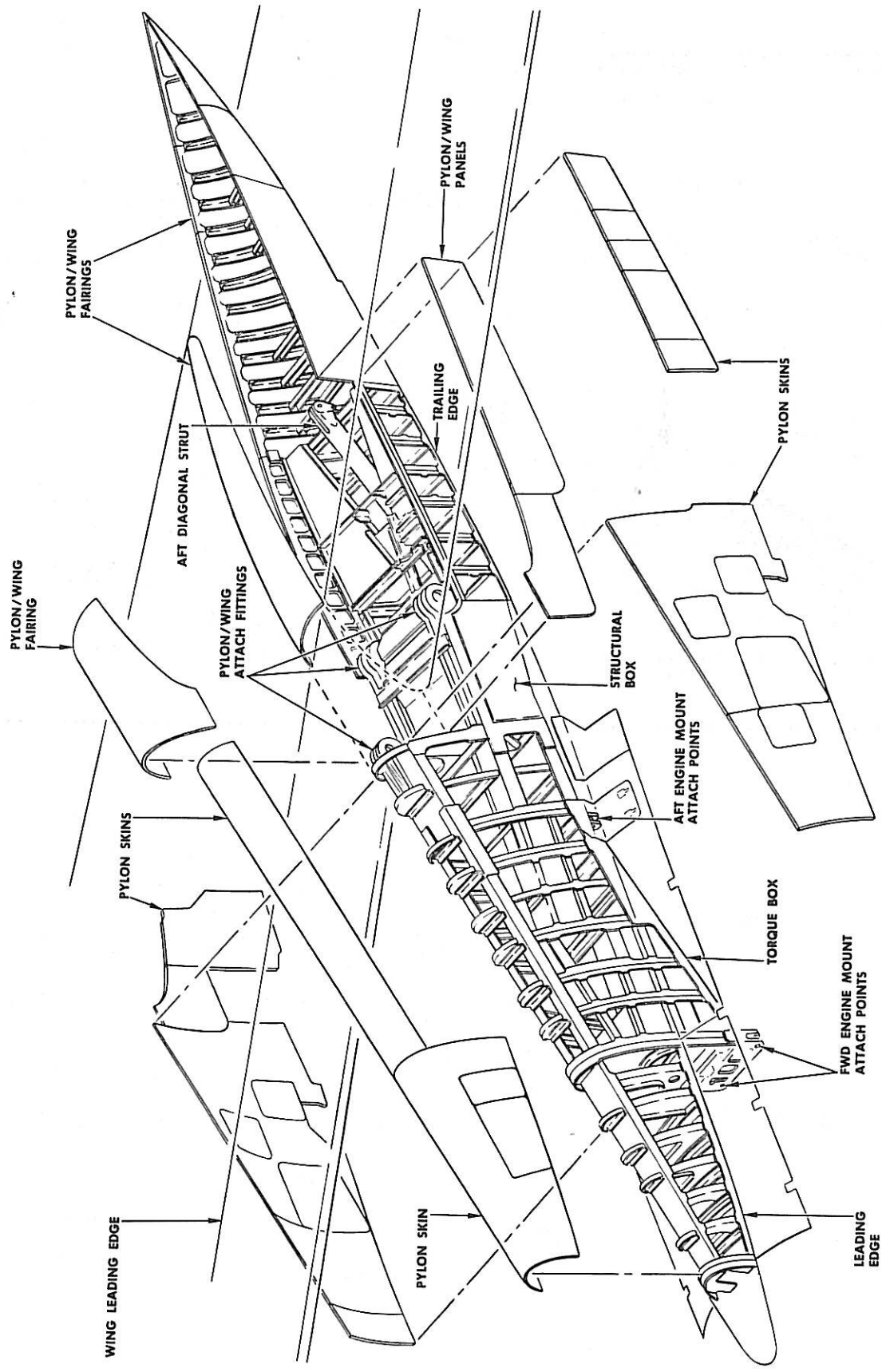
The structural box carries loads from the torque box aft diagonal strut and trailing edge into the wing front spar pylon attach fittings. The structural box also carries rolling and yawing moments from the pod and pylon into the wing. The structural box is constructed of aluminum alloy, steel, and titanium. A fairing, constructed of aluminum alloy and titanium, attaches to the bottom of the structural box.

*Refer to Manual INTRODUCTION for Explanation of Group Designations.


NOTE:
APPLICABLE TO GROUP I AIRPLANES.
REFER TO MANUAL INTRODUCTION FOR
EXPLANATION OF GROUP DESIGNATIONS.
PYLON WING FAIRING
WING TRAILING EDGE (REF)
PYLON WING FAIRINGS
FWD
AFT DIAGONAL STRUT
PYLON TO WING ATTACH FITTINGS
PYLON SKINS
PYLON WING PANELS
TRAILING EDGE
STRUCTURAL BOX
WING LEADING EDGE SLAT (REF)
AFT ENGINE MOUNT ATTACH POINT
PYLON SKINS
TORQUE BOX
LEADING EDGE
FWD ENGINE MOUNT ATTACH POINTS


NOTE:
APPLICABLE TO GROUP II AIRPLANES:
CV26 THROUGH CV34
PYLON/WING PANELS
WING LEADING EDGE FLAP (REF)
FWD
PYLON SKIN

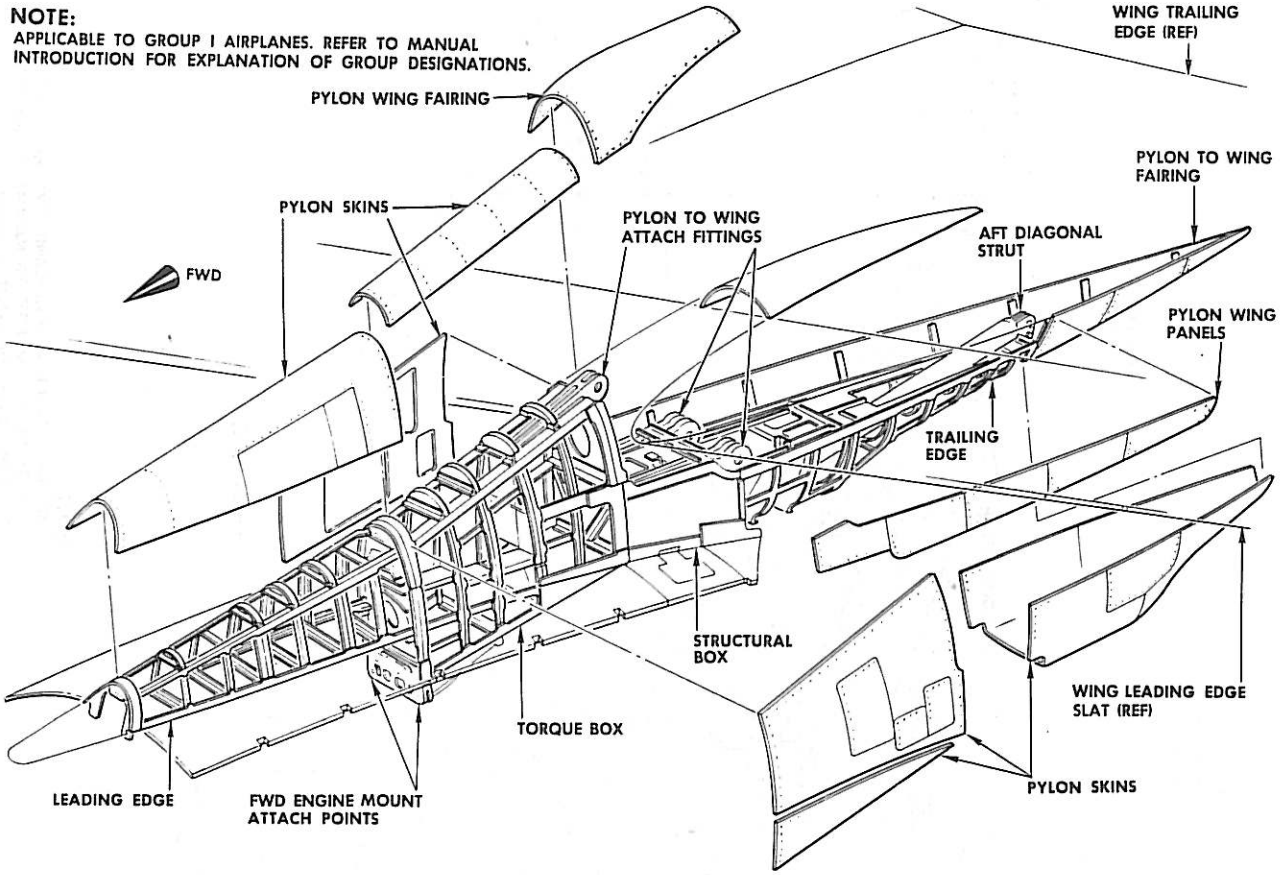
30.30.54.003A



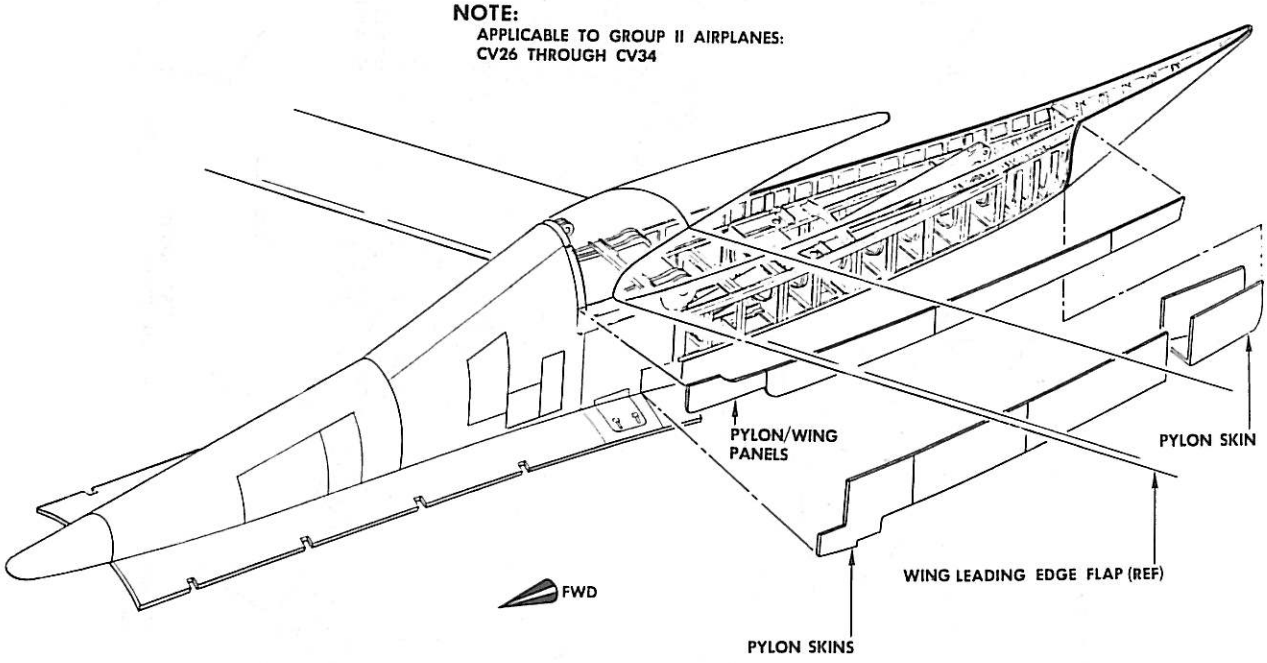
NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV1 THROUGH CV25, CV35 THROUGH CV37. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.

30.02.54.021

NOTE:
APPLICABLE TO GROUP I AIRPLANES. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.

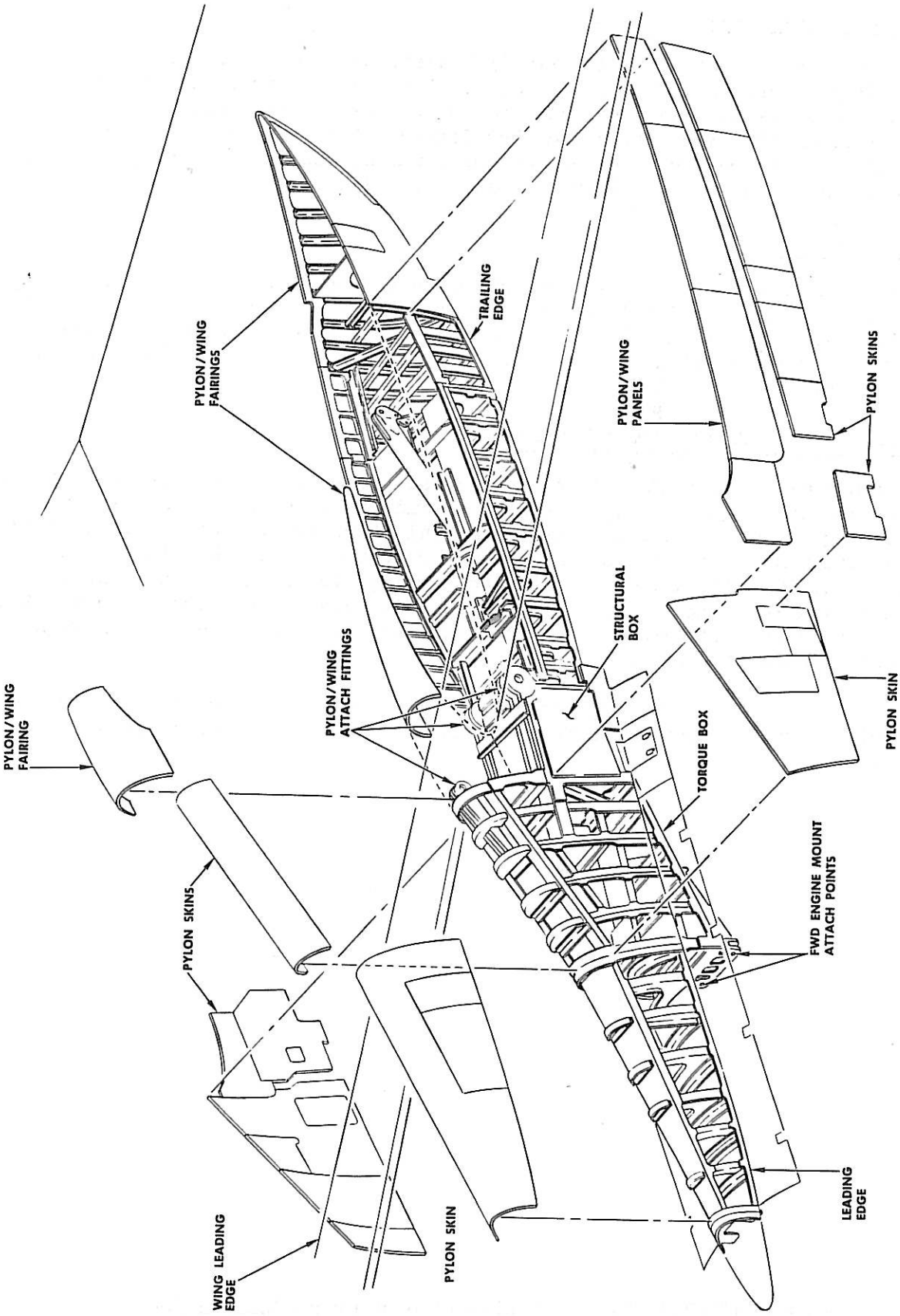


NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV26 THROUGH CV34



30.02.54.010A

Outboard Pylon Structure
Figure 2 (Sheet 1 of 2)



NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV1 THROUGH CV25, CV35 THROUGH CV37. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.

5. Aft Diagonal Strut

The aft diagonal strut is an axially loaded, seamless steel tube with steel fittings welded on each end. A male fitting on the lower end of the strut houses a self-aligning spherical bearing to prevent side bending loads on the tube as the pylon structural box deflects from yawing loads. A two-lug female fitting on the upper end of the strut attaches to the wing fittings. The strut is unsupported between the end fittings.

6. Trailing Edge

The trailing edge is constructed of 2024 aluminum alloy. The trailing edge fairing consists basically of vertical bulkheads and outer skins. Access panels are provided in the trailing edge for access to the aft diagonal strut forward attachment point and to equipment installed inside the trailing edge.

7. Pylon-to-Wing Fairings and Panels

Aluminum alloy fairings and panels enclose the area between the pylon structure and the wing. An upper fairing extends from the pylon torque box to the wing and encloses the forward diagonal strut area. The remaining fairings and panels extend from the pylon torque box, under the wing, to the wing trailing edge and enclose tubing, wiring, lower wing front spar attachments, and aft diagonal strut attachment fittings at the wing. The fairings and panels are attached to the pylon, to the wing and to each other with countersunk-head screws.

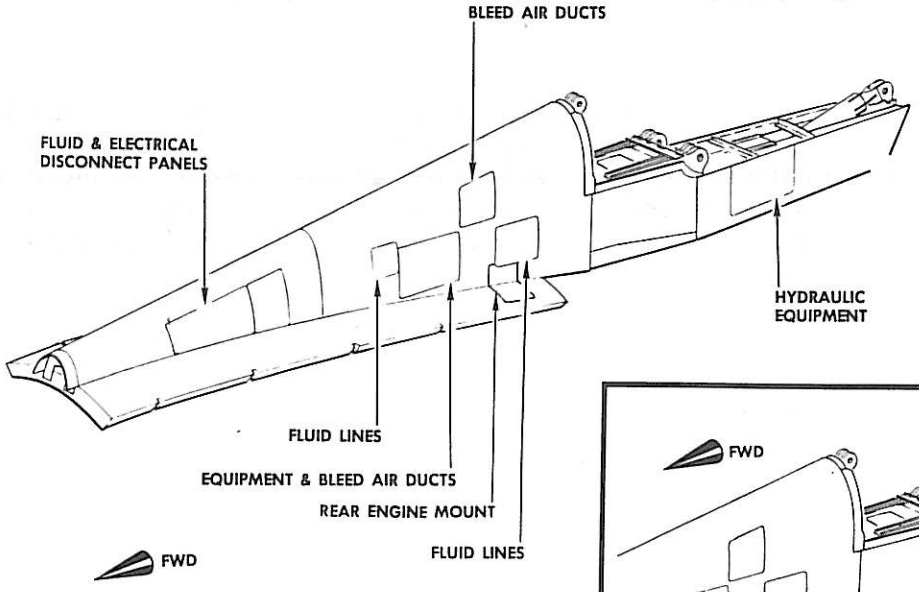
*Applicable to Group II airplanes; the lower surface of the underwing pylon fairing supports tracks for forward and aft movement of the translating cowl.

*Refer to Manual INTRODUCTION for Explanation of Group Designations.

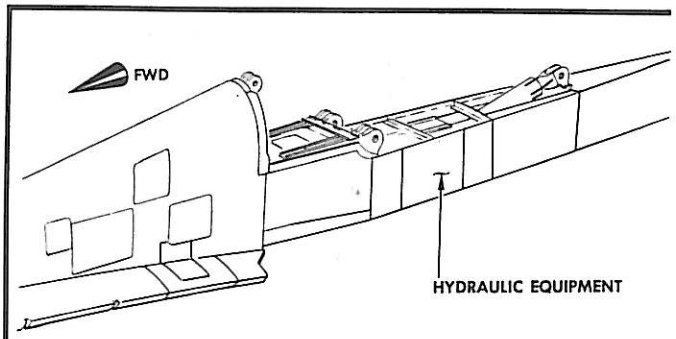
PYLON STRUCTURAL ACCESS PANELS - DESCRIPTION AND OPERATION

1. Description

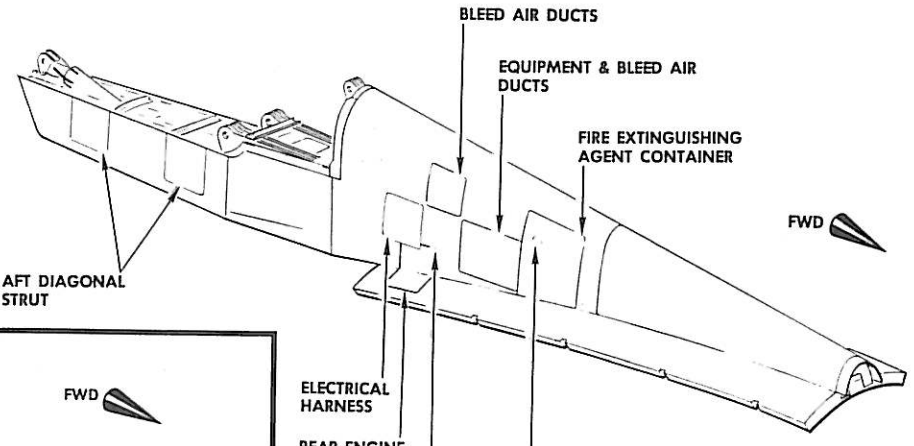
Removable panels in the pylons provide access to the fluid and electrical lines, fire extinguishing agent container, engine bleed air duct, hydraulic equipment, etc.; see Figures 1 and 2. All pylon access panels are capable of carrying the shear loads imposed by the adjacent pylon skins. All access panels attach to the pylon structure with countersunk-head screws.

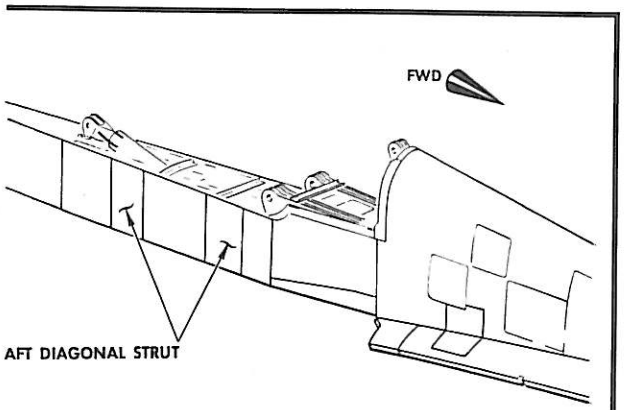


NOTE:
APPLICABLE TO GROUP I AIRPLANES. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.



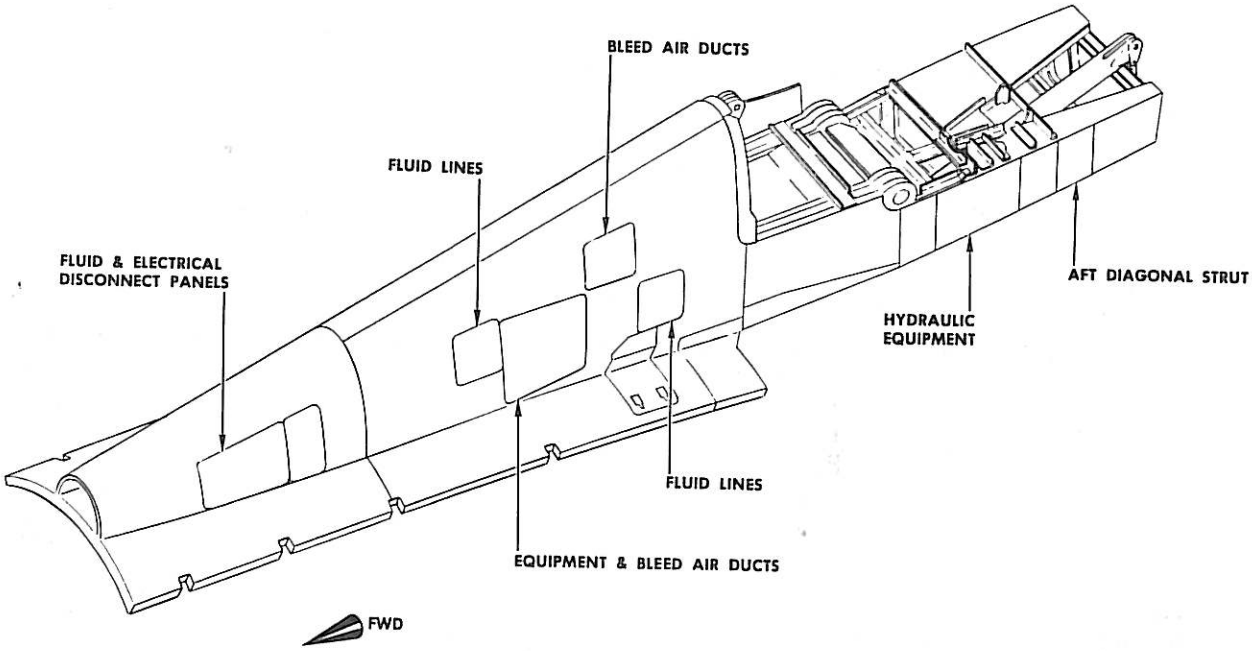
NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV26 THROUGH CV34



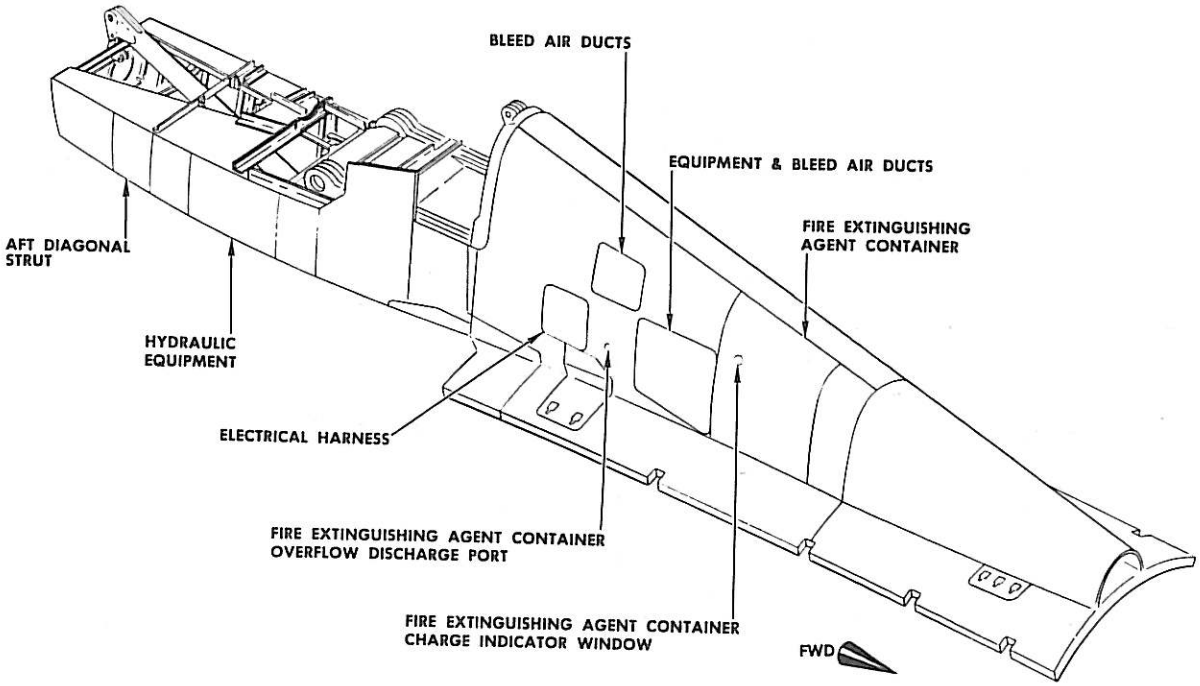


NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV26 THROUGH CV34

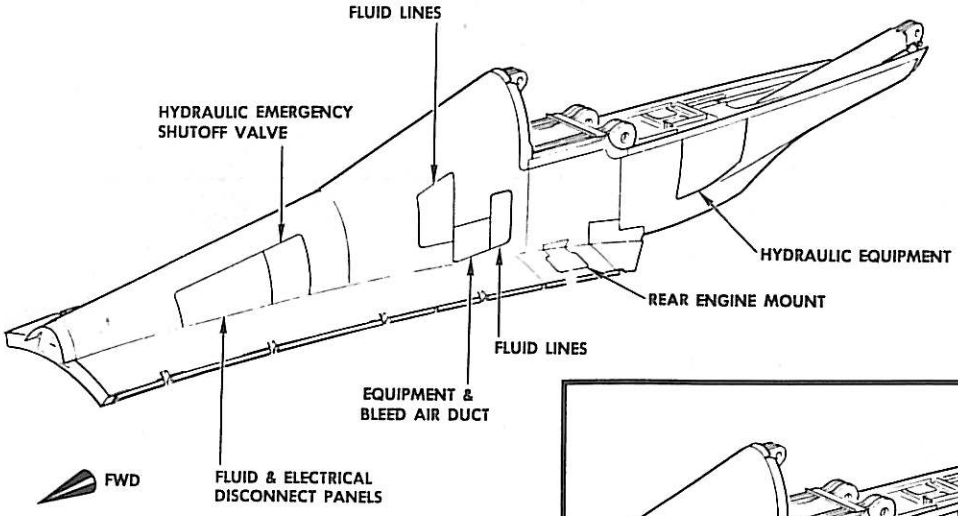
30.30.54.004B



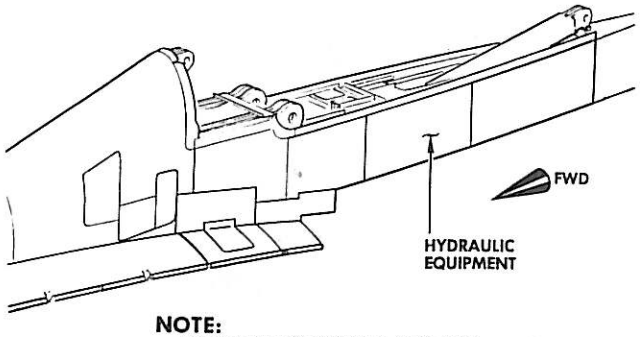
NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV1 THROUGH CV25, CV35 THROUGH CV37. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.



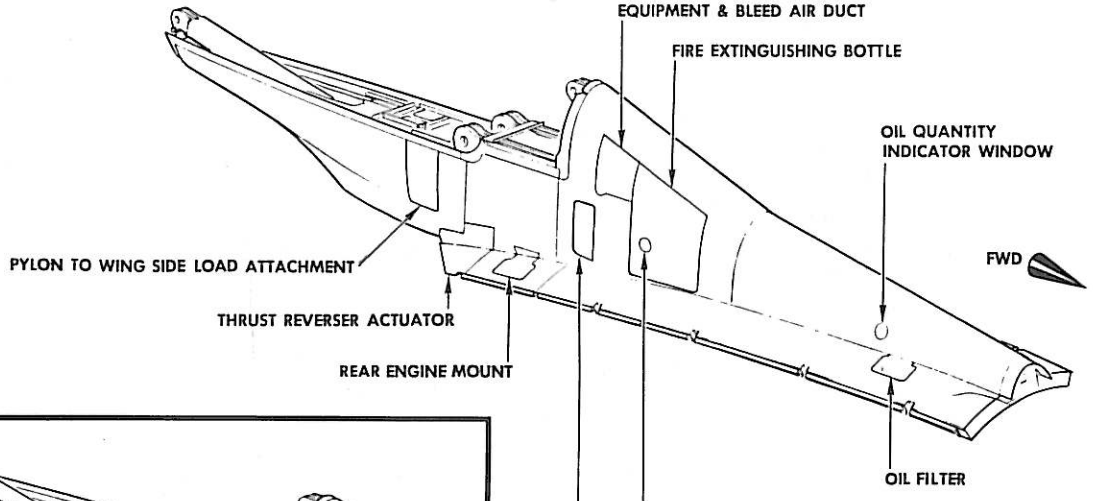
30.02.54.023

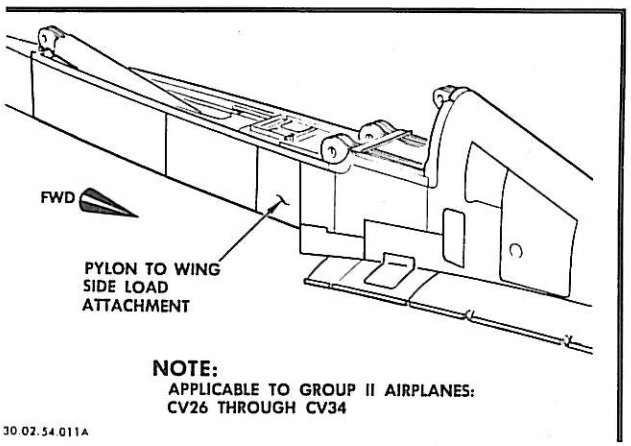


NOTE:
APPLICABLE TO GROUP I AIRPLANES. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.



NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV26 THROUGH CV34

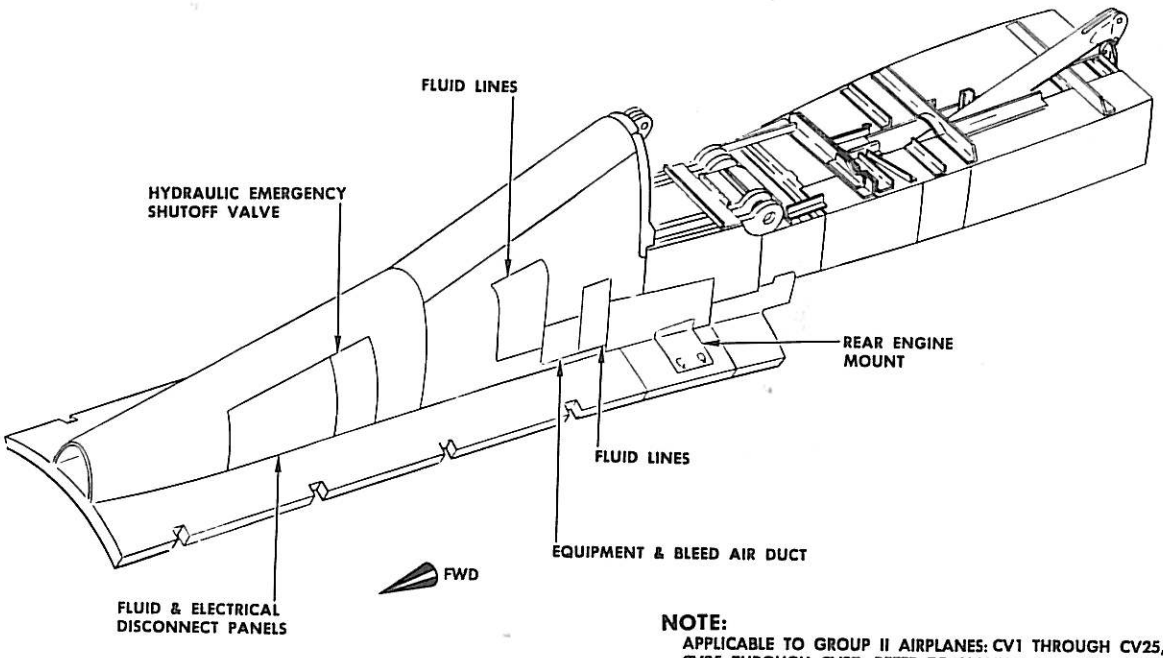




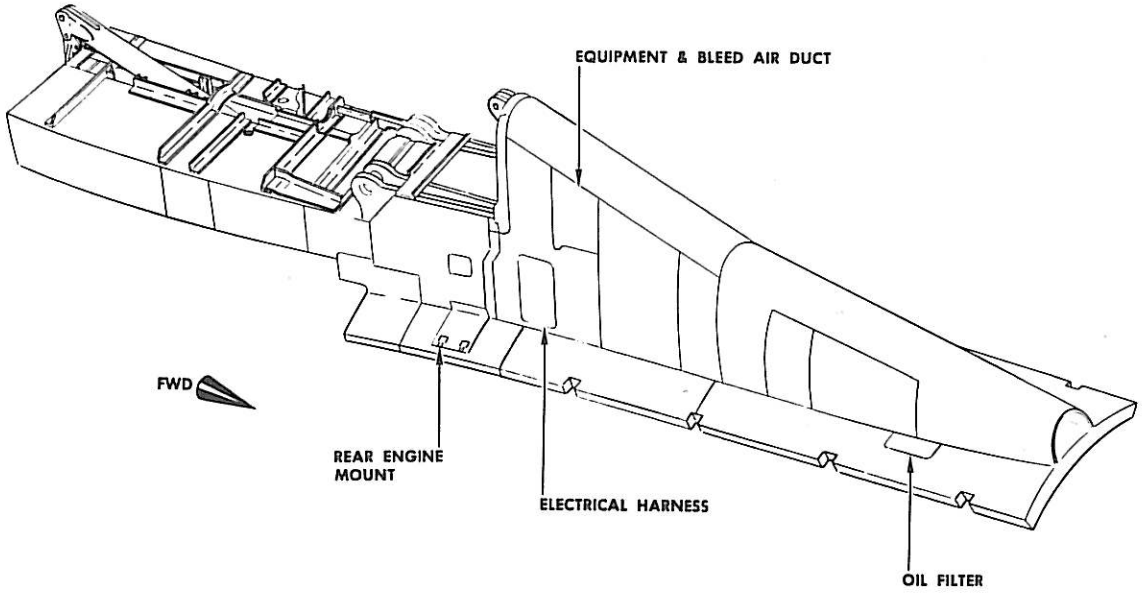
NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV26 THROUGH CV34

30.02.54.011A

Outboard Pylon Access Panels
Figure 2 (Sheet 1 of 2)



NOTE:
APPLICABLE TO GROUP II AIRPLANES: CV1 THROUGH CV25, CV35 THROUGH CV37. REFER TO MANUAL INTRODUCTION FOR EXPLANATION OF GROUP DESIGNATIONS.



30.02.54.024

PYLON STRUCTURAL ACCESS PANELS - MAINTENANCE PRACTICES

1. Removal/Installation Pylon Structural Access Panels.

   A. Equipment Required - None.

   B. Preparation - None.

   C. Remove Panel. Remove attaching screws and remove panel. (Bag and tag screws for installation.)

   D. Install Panel.

      NOTE: If repair of access panel sealing is required, refer to Chapter 51, STRUCTURES GENERAL, for sealing procedures.

      (1) Position panel over opening; install panel. Refer to Chapter 12, SERVICING, for screw type, size, and number of screws required.

         NOTE: See Chapter 51, STRUCTURES GENERAL, for smoothness and contour tolerances.

2. Removal/Installation Access Door Sealant

   Refer to Chapter 51, STRUCTURES GENERAL, for sealing procedures.

POD STRUCTURE - DESCRIPTION AND OPERATION

1. General

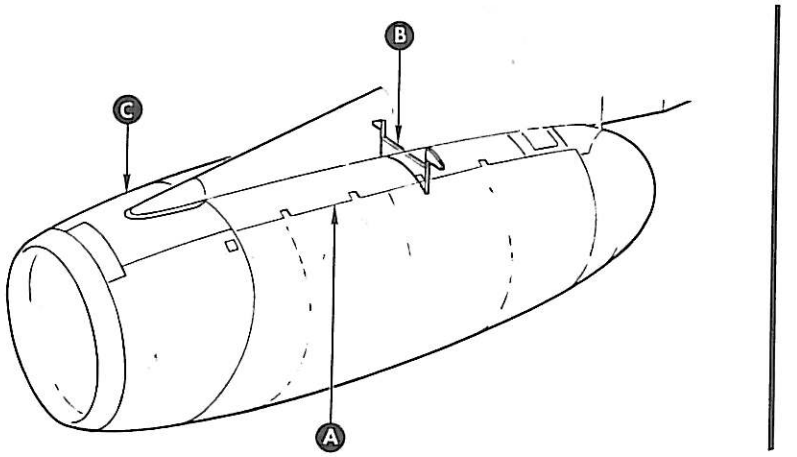
The pod structure consists of the upper fixed section, nose cowl assembly, two aft fan air inlet ducts, and two clamshell door panels. Each aft fan air inlet duct hinges to the pod fixed section at three places and attach to each other along the bottom at two places. Each pod door panel hinges to the pod fixed section at four places, latch together along the bottom centerline of the pod assembly at seven places and at the nose cowl assembly at three places, enclosing the engine, engine accessories, and aft fan air inlet ducts. The door latches can be visually ground checked to determine that they are closed and locked.

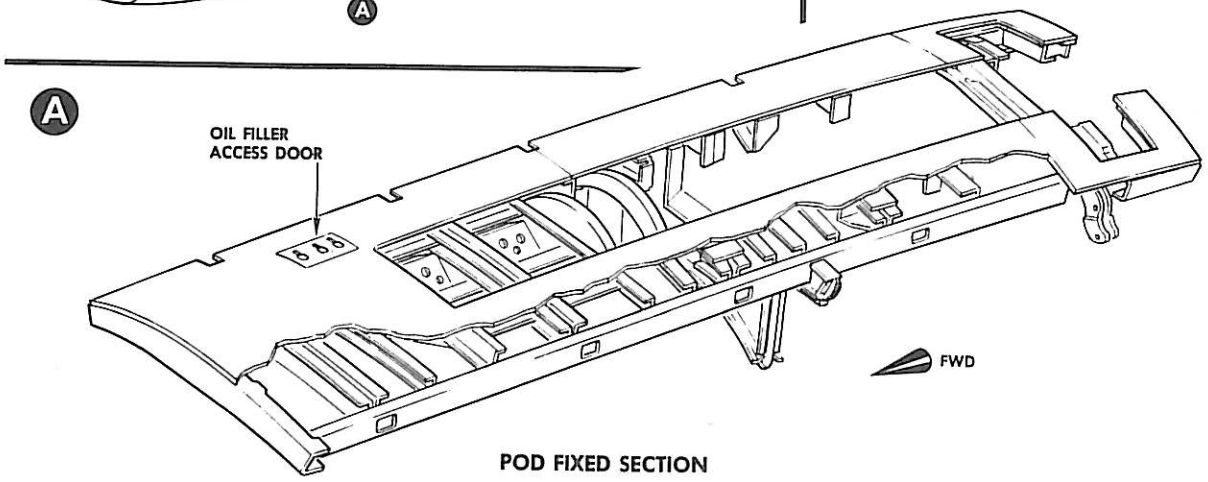
2. Pod Fixed Section

The pod fixed section forms the upper main structural portion of the pod assembly (see Figure 1). The pod fixed section attaches to the pylon torque box. The aft fan air inlet ducts and pod doors hinge to the pod fixed section on a fore and aft hinge line. The pod fixed section encloses the upper portion of the engine and forms a fireproof barrier between the engine and pylon. The pod fixed section skins are titanium and the hinge longerons are steel. The internal ribs at the hinge point locations and aft of the vertical firewall are titanium. All other internal ribs are 2024 aluminum alloy. An access door to the engine oil and CSD tank filler caps is located in the forward right side of the pod fixed section. Two access doors to the aft engine mount are located in the aft left and right sides of the pod fixed section. Snap-lock fasteners secure the three access doors in the closed position. Tadpole-type seals, held in position by retainer strips and screws, are installed along the outside surface of each hinge longeron. The tadpole-type seals serve as a weathertight seal between the lower edge of the pod fixed section and the upper edge of the pod doors.

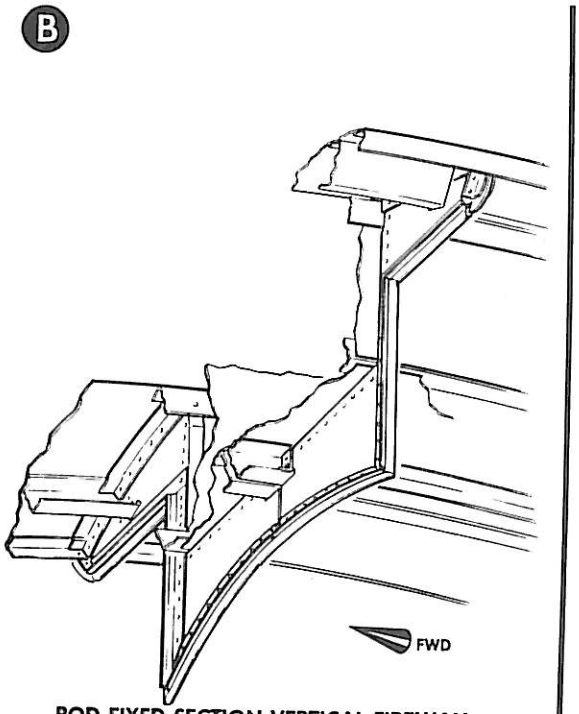
3. Nose Cowl Assembly

The nose cowl assembly forms the external forward fairing of the pod (see Figure 1). The nose cowl inner duct directs ram air into the engine compressor inlet and the aft fan air inlet ducts. The nose cowl leading edge lip is thermally anti-iced with engine bleed air. A screw-fastened panel on the upper left side of the nose cowl provides access to the ice detector. A vortex destroyer jet outlet is provided on the forward bottom centerline of the nose cowl. This vortex destroyer jet outlet directs a stream of air to the ground, forward of the engine air intake, to prevent formation of a vortex which might pick up foreign material from the ground and allow it to be sucked into the engine air inlet. The vortex destroyer operates only when the airplane is on the ground. An accessory section air inlet scoop is located on the bottom centerline of the nose cowl. This air inlet supplies ram air to the accessory section cooling air scroll which is



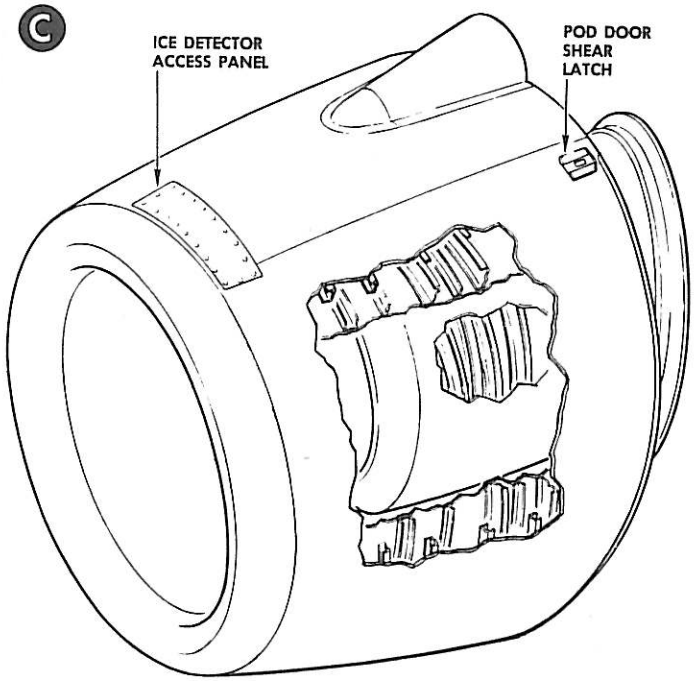


POD FIXED SECTION



POD FIXED SECTION VERTICAL FIREWALL

30.30.54.005 A



NOSE COWL

attached to the nose cowl inner duct. A series of holes around the outside periphery of the air scroll distributes the cooling air into the forward accessory area.

The nose cowl leading edge is 2024 aluminum alloy. The inner duct skin and rings, exterior surface skin, formers, and longitudinal members are 7075 aluminum alloy.

4. Vertical Firewall

The vertical firewall is titanium and bolts to a radial flange attached to and encircling the engine casing. The firewall is stiffened by sheet metal angles extending radially across the web of the firewall. This firewall contacts fireproof seals on the aft fan air inlet ducts, pod door panels, and fixed pod section structure to isolate the combustion and turbine sections of the engine from the accessory and compressor section. The fireproof seals on the aft fan air inlet ducts, pod doors, and fixed section structure are secured in place with screws and retainer strips.

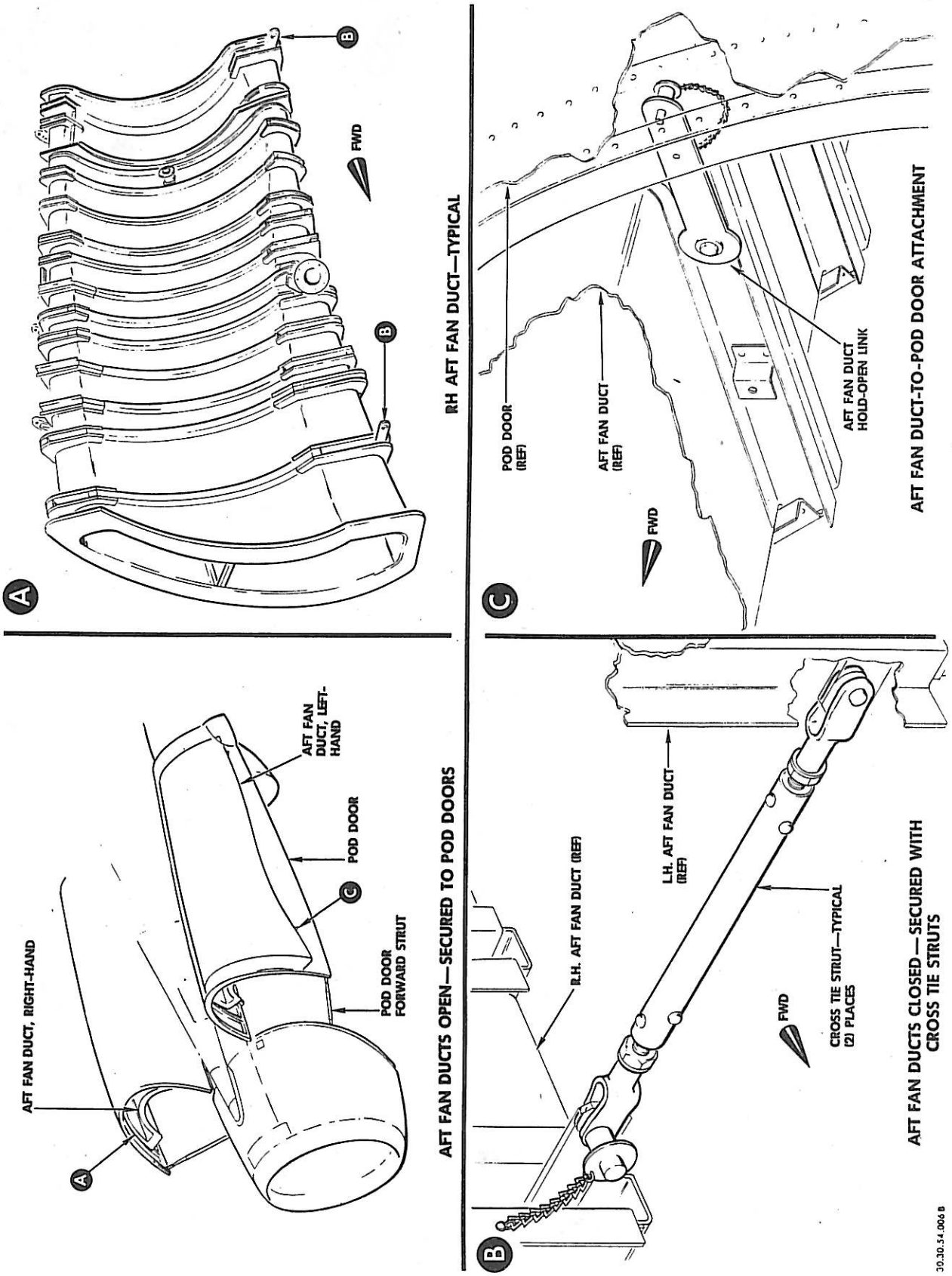
5. Aft Fan Air Inlet Ducts

The aft fan air inlet ducts hinge to the pod fixed section structure at three points along the upper edge of each duct (see Figure 2). Two adjustable cross-tie struts attach the ducts to each other along the lower edges. The ducts are held in the open position, for access to the sides of the engine, by fittings that connect to the pod doors.

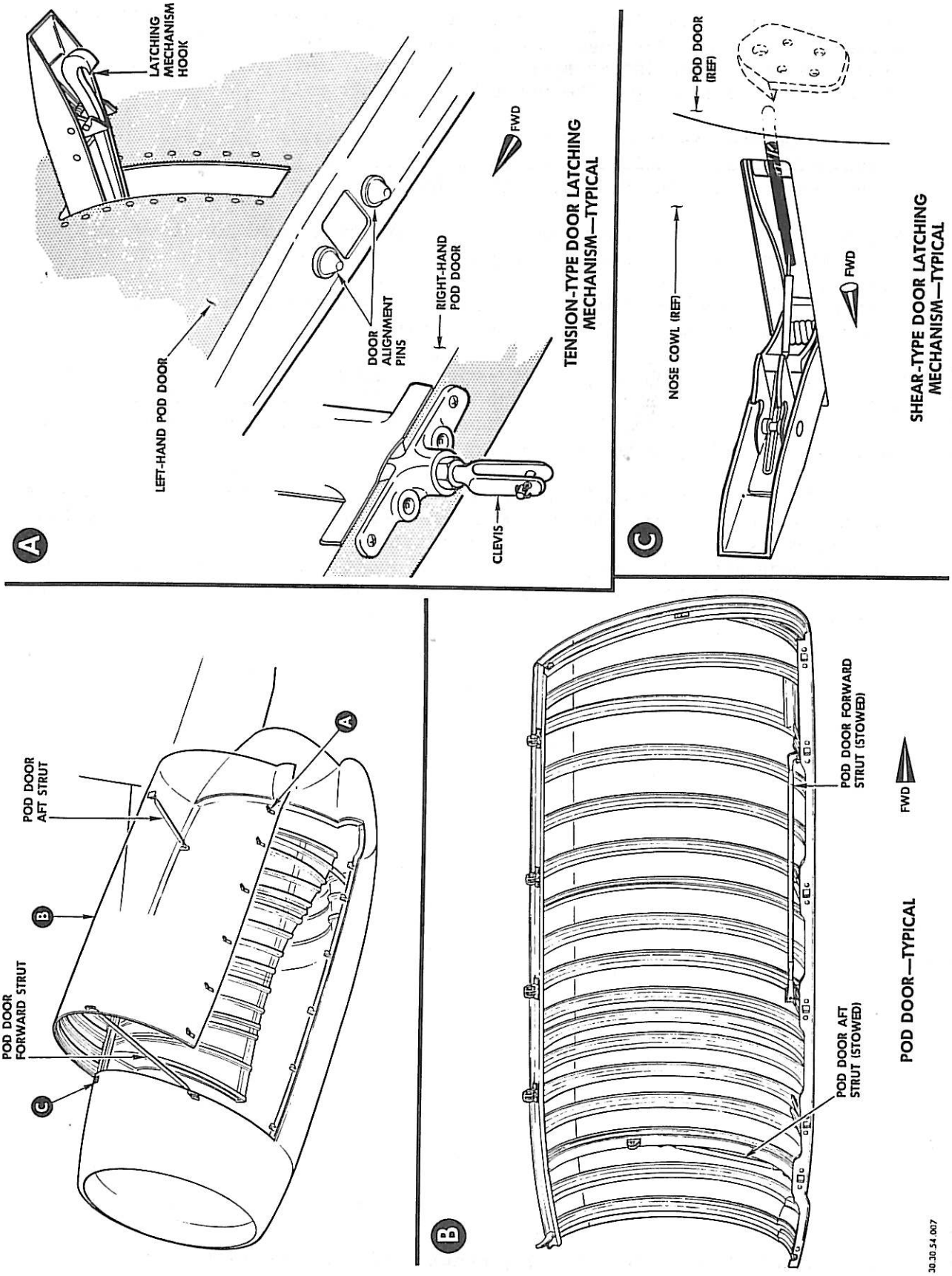
The generator cooling air inlet and exit ducts are located in the forward section of the left and right aft fan air inlet ducts respectively. Three engine seal leakage air ducts are located in the aft section of the left (two ducts) and right (one duct) aft fan air inlet ducts. The generator cooling air and the engine seal leakage air is discharged directly into the aft fan inlet air stream.

6. Pod Doors

The pod doors hinge to the pod fixed section structure at four points along the upper edge of each door (see Figure 3); each pod door is provided with an alignment pin located at the upper aft edge to mate with alignment slots in the aft pod fixed section to assure correct pod door longitudinal match. The doors are secured to the nose cowl on the forward edge at three places and to each other along the bottom centerline of the pod at seven places with tension-type latches; one forward bottom center cowl pod door latch is of the mechanical shear type. Adjustable clevis latch receptacles are mounted on the bottom edge of the pod right door. These clevis latch receptacles are threaded and may be adjusted in or out to increase or decrease tension on the tension-type latches located at bottom centerline of the pod left door.



Aft Fan Air Inlet Duct Structure
Figure 2


A
LATCHING MECHANISM HOOK
LEFT-HAND POD DOOR
DOOR ALIGNMENT PINS
RIGHT-HAND POD DOOR
FWD
CLEVIS
TENSION-TYPE DOOR LATCHING MECHANISM—TYPICAL
C
POD DOOR (REF)
NOSE COWL (REF)
FWD
SHEAR-TYPE DOOR LATCHING MECHANISM—TYPICAL
B
POD DOOR AFT STRUT
POD DOOR FORWARD STRUT
POD DOOR FORWARD STRUT (STOWED)
POD DOOR AFT STRUT (STOWED)
FWD
POD DOOR—TYPICAL
30.30.54.007

Door construction consists basically of a hinge longeron on the upper edge, a longeron on the lower edge, and interconnecting vertical frames spaced approximately eleven inches apart. The frames, lower longeron, and skin are 2024 aluminum alloy. The upper hinge longeron is titanium.

A bead-type seal is installed along the bottom edge of the pod right-hand doors. The seal is held in position by a retainer and serves as a weather-tight seal between the pod left and right doors.

The pod doors provide vents for turbine compartment cooling, accessory compartment cooling, fuel heater and engine sump overboard drain, and pod door drain system installation overboard drain; pod access doors provide trigger-action latch access to the fuel control, and spring-clipped "push-in" emergency access for ground fire fighting equipment.

*Applicable to Group II airplanes; seven spring loaded auxiliary air (tertiary) doors are located on the aft end of the pod doors, four on the left-hand doors and three on the right-hand doors. The auxiliary air (tertiary) doors are opened by negative pressure from within the pod.

Fore and aft support rods hold the pod doors open for access to the engine mounted accessories and the bottom of the engine. These rods are capable of supporting the doors in the open position in winds up to 30 knots. The support rods are positively stowed on the doors when the doors are closed so as to prevent damage to the engine or engine accessories or to the rods themselves.

*Refer to Manual INTRODUCTION for Explanation of Group Designations.

POD DOORS - MAINTENANCE PRACTICES

1. Removal/Installation Pod Doors (see Figure 201)

A. General.

Removal/Installation procedures for inboard and outboard pod doors are identical.

B. Equipment Required - None.

C. Open Pod Doors.

(1) Release shear-type latches at the upper nose cowl-to-pod forward door edge and upper aft pod door edge; release the tension-type latches along the pod bottom center-line. Open pod door; extend and secure the forward and aft pod door hold-open struts.

CAUTION: WHEN OPENING POD DOORS, UNLATCH THE UPPER POD DOOR FORWARD AND AFT SHEAR-TYPE LATCHES BEFORE UNLATCHING THE BOTTOM CENTER-LINE TENSION-TYPE LATCHES. DAMAGE MAY RESULT IF POD DOOR WEIGHT IS ALLOWED TO HANG FROM UPPER POD DOOR LATCHES.

D. Remove Pod Door.

(1) Disconnect electrical bond braid at door aft hinge line. Tag and stow electrical bond braid at fixed pod section attach point to avoid damage during door removal.

NOTE: Bag and tag all loose hardware for ease of reinstallation.

(2) Remove cotter pin, nut, washer, hinge bolt, and hinge clamp-up bushing from each pod door hinge; remove pod door.

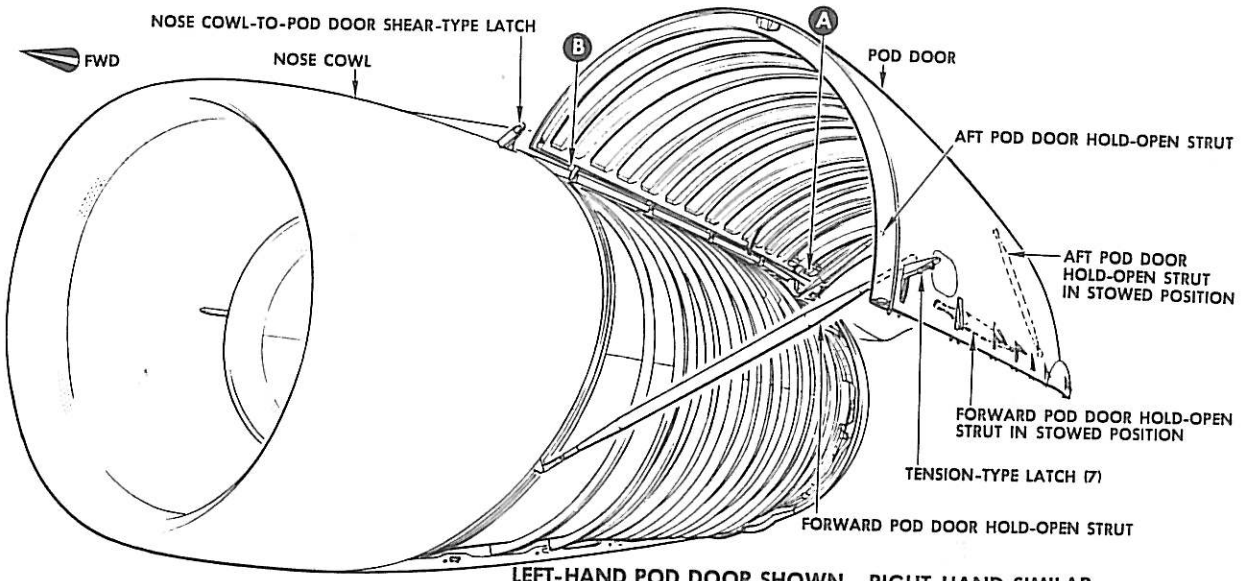
NOTE: The press-fit bushings installed in the pod door hinge fittings and the pod fixed section clevis-type pod door hinge fittings are permanent bearing surfaces and are not removed during pod door removal.

E. Install Pod Door.

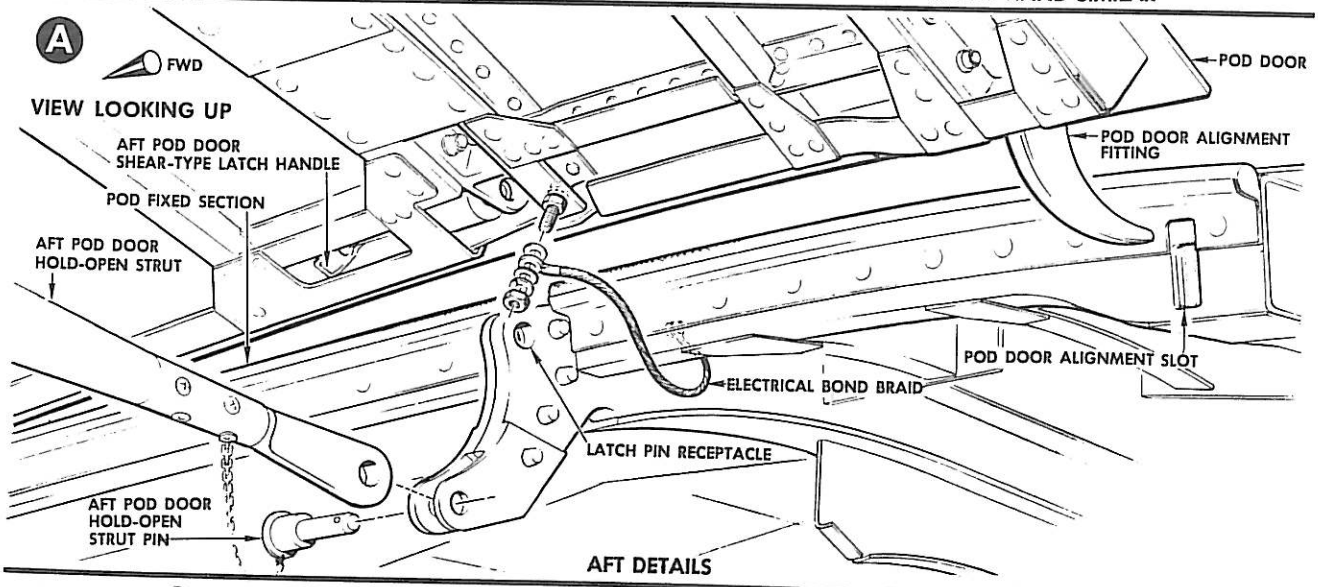
(1) Align clevis-type pod door hinge fittings located in pod fixed section.

(2) Insert pod door clamp-up hinge bushing and install hinge bolt, washer, nut, and cotter pin; refer to Figure 201.

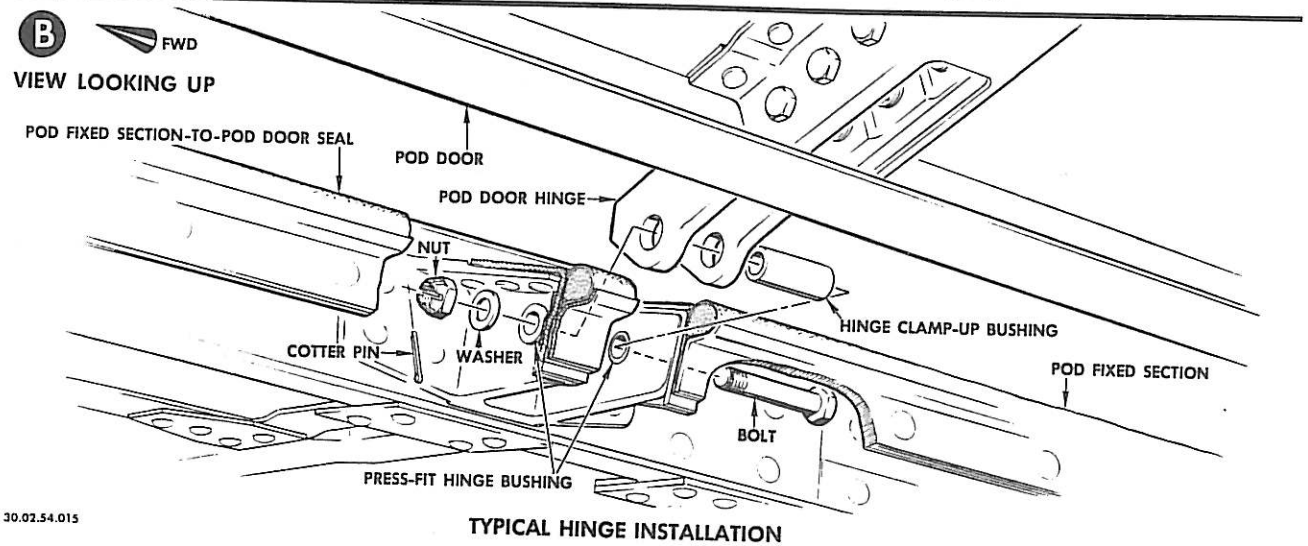
NOTE: Washer is installed under the nut.



LEFT-HAND POD DOOR SHOWN— RIGHT-HAND SIMILAR



AFT DETAILS



30.02.54.015

TYPICAL HINGE INSTALLATION

(3) Extend and secure forward and aft pod door hold-open struts.

(4) Connect electrical bond braid to pod door.

(5) Release the forward and aft pod door hold-open struts; lower door and check for alignment and freedom of hinge action. Return door hold-open struts to the stowed position on the door.

F. Close Pod Doors.

CAUTION: BEFORE CLOSING POD DOORS, MAKE CERTAIN THAT THE UPPER FORWARD AND AFT SHEAR-TYPE LATCHES ARE IN THE OPEN POSITION.

(1) Engage and secure the aft bottom centerline pod door tension-type latch.

NOTE: Make certain that the pod door alignment fitting on each top aft pod door mates in the alignment slot in the aft side edge of the pod fixed section for correct longitudinal pod door match.

(2) Working forward along the pod keel, engage and secure each pod door tension-type latch.

NOTE: Make certain that door seals meet without gap or undue distortion.

(3) Check that the forward bottom cowl pod door mechanical shear-type latch is engaged and secure.

(4) Engage and secure the cowl pod door tension-type latches.

CAUTION: DO NOT USE UNDUE FORCE ON THE LATCHES. IF ANY LATCH IS DIFFICULT TO ENGAGE OR LOCK, VARY THE LATCHING PROCEDURE BY UNLOCKING ADJACENT LATCHES OR MAKE LATCH COMPRESSION RECEPTACLE ADJUSTMENTS AS REQUIRED.

(5) Adjust pod door latches; refer to Adjustment/Test.

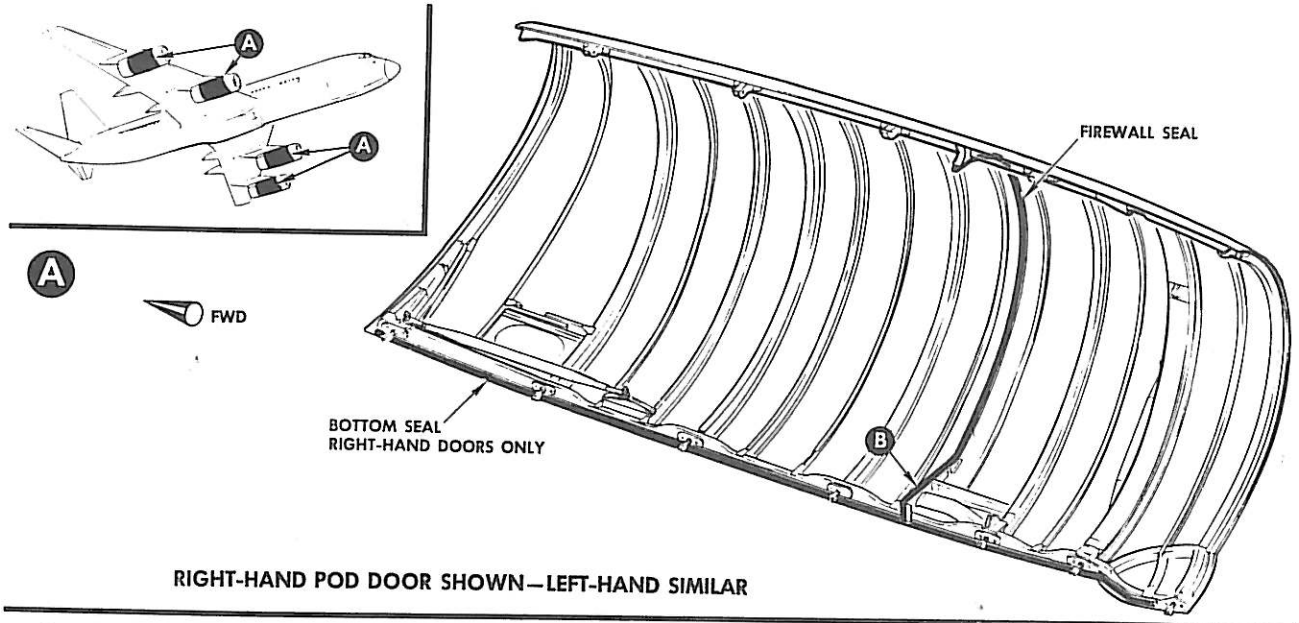
2. Removal/Installation Pod Door Seals (see Figure 202)

A. Equipment Required.

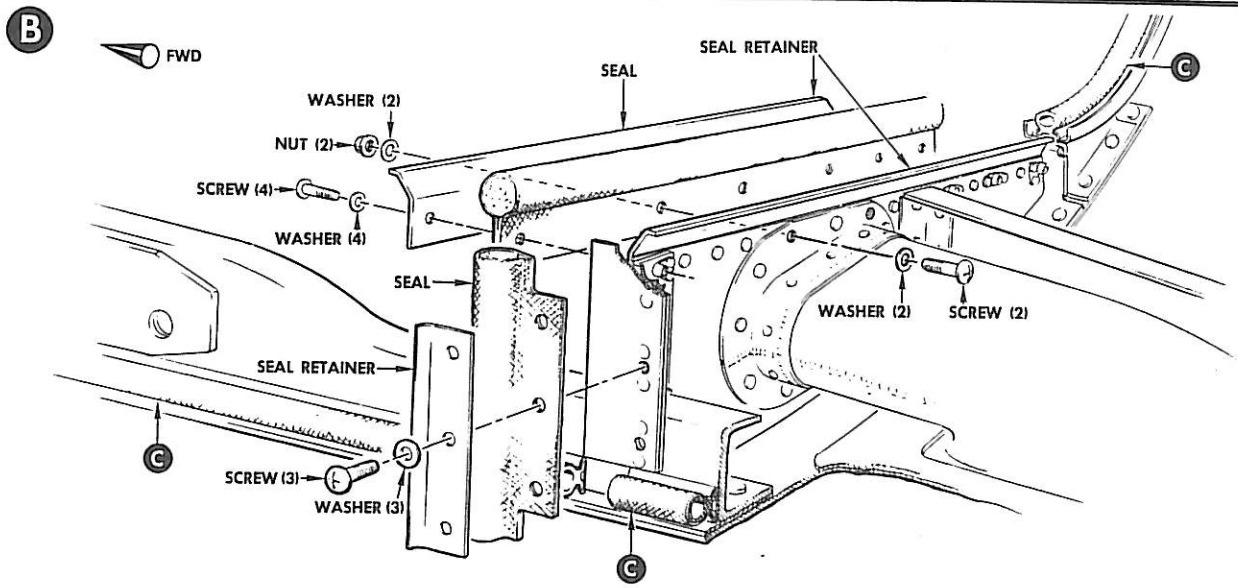
(1) Locally manufactured insertion tool as shown on Figure 202 (or equivalent).

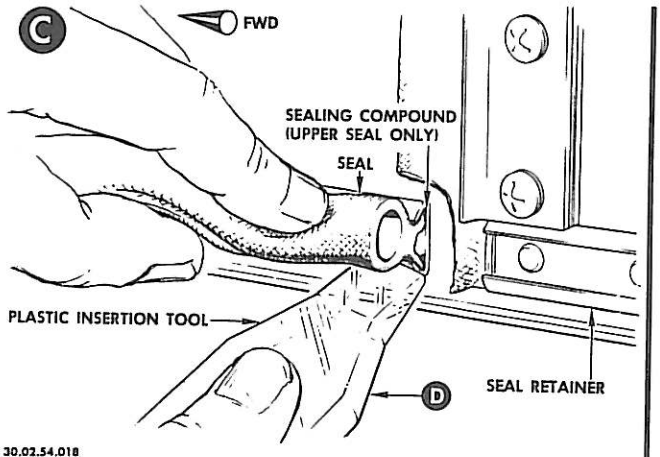
(2) Sealing Compound, EC 1663, 3M Co., St. Paul 6, Minn., or equivalent.

(3) Primer, EC 1662, 3M Co., St. Paul 6, Minn., or equivalent.

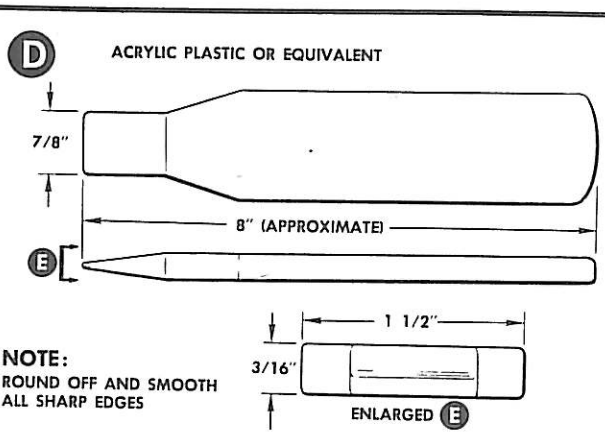


RIGHT-HAND POD DOOR SHOWN—LEFT-HAND SIMILAR





30.02.54.018



NOTE:
ROUND OFF AND SMOOTH
ALL SHARP EDGES

PLASTIC INSERTION TOOL DIMENSIONS

B. Preparation.

(1) Open applicable pod door and install door hold-open support rods.

C. Remove Upper Portion of Firewall Seal.

(1) Insert tapered end of insertion tool between side of seal and retainer.

(2) Pry retaining flange of seal out of retainer.

CAUTION: DO NOT USE SCREWDRIVER OR SIMILAR SHARP POINTED INSTRUMENT TO REMOVE SEAL FROM RETAINER.

(3) Repeat steps (1) and (2) along entire length of retainer and remove seal.

D. Install Upper Portion of Firewall Seal.

NOTE: The following procedure also includes seals along the bottom edge of the left-hand inboard and right-hand outboard pod doors.

(1) Clean seal retainers of all dirt, oil, grease, and other foreign matter.

(2) Check that sides of seal retainers are symmetrical so that seal will seat properly when installed.

(3) Apply specified primer to pod door seal retainer faying surfaces as directed in Chapter 51, STRUCTURES GENERAL.

(4) Apply specified sealing compound to faying surface of pod door seal.

(5) Starting from end of seal retainer, install seal as follows:

(a) Insert outward retaining flange of seal under corresponding lip in seal retainer.

(b) Using tapered end of insertion tool, apply an inward pressure against the exposed flange of seal, on side opposite to the inserted flange, and force exposed flange of seal under lip of retainer.

CAUTION: DO NOT USE SCREWDRIVER OR SIMILAR SHARP POINTED INSTRUMENT TO INSTALL SEAL.

(c) Using blunt end of insertion tool, apply an inward pressure against center of seal crown so that the inside edges of the seal are properly positioned in seal retainer.

(6) Repeat steps (5) (a) through (5) (c) along entire length of retainer.

E. Remove Lower Portion of Firewall Seal.

(1) Remove screws and washers attaching seal and seal retainer to pod door structure.

NOTE: If more than one seal removed, tag and identify seal retainers for ease of reinstallation.

F. Install Lower Portion of Firewall Seal.

(1) Position seal under seal retainer, align screw holes in seal and seal retainer to match existing holes in door structure.

(2) Install washers and screws.

3. Adjustment/Test Pod Door Latches (see Figure 203)

A. Equipment Required - None.

B. Adjust Pod Door Latches.

CAUTION: WHEN OPENING POD DOORS, UNLATCH THE UPPER POD DOOR FORWARD AND AFT SHEAR-TYPE LATCHES BEFORE UNLATCHING THE BOTTOM CENTER-LINE TENSION-TYPE LATCHES. DAMAGE MAY RESULT IF POD DOOR WEIGHT IS ALLOWED TO HANG FROM UPPER POD DOOR LATCHES.

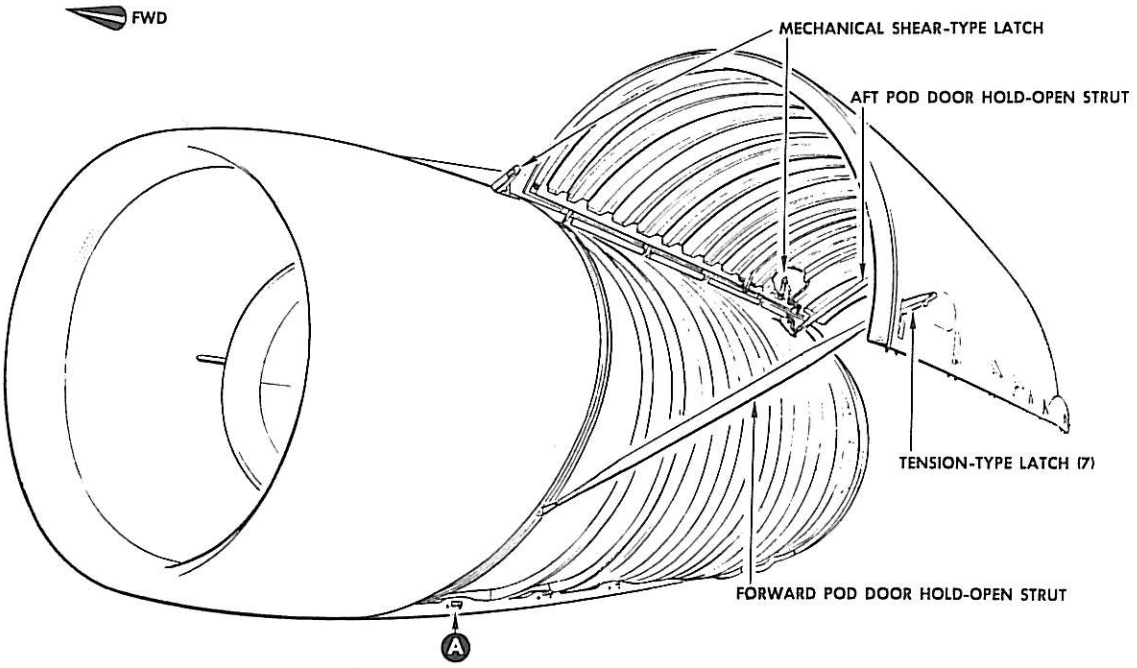
(1) Check that the pod door alignment pin and slot mate properly for longitudinal pod door match.

(2) Adjust clevis compression-type latch receptacles mounted on lower edge of pod right door.

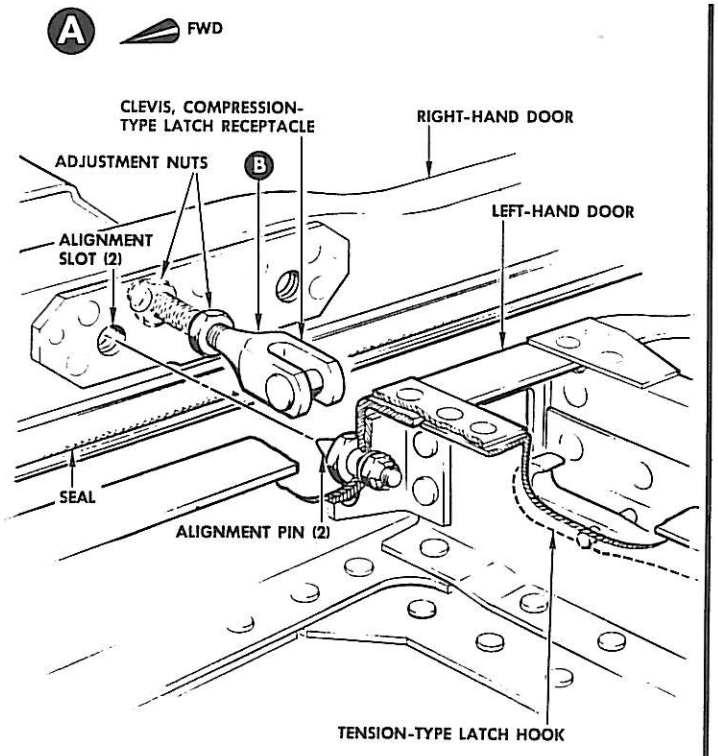
NOTE: The clevis compression-type latch receptacle mounted on pod right door is threaded and may be adjusted in or out as required.

(3) Check that mechanical shear-type latch pins engage their receptacles.

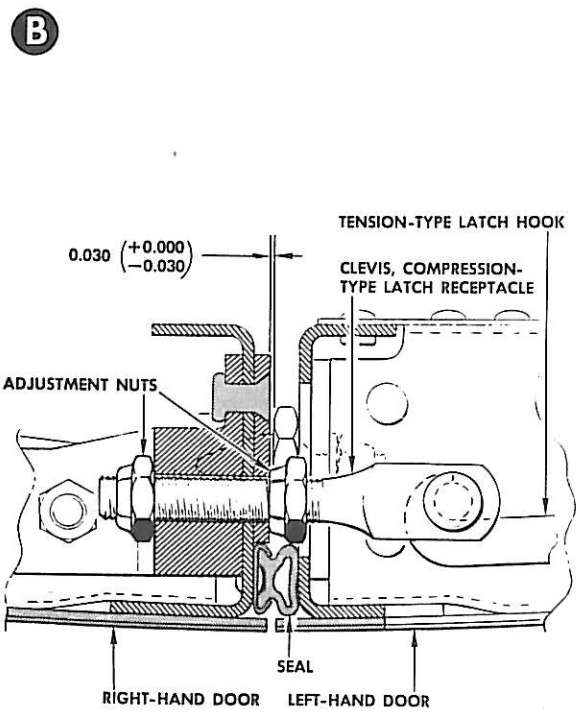
(4) For gap and mismatch; refer to aerodynamic smoothness data in Chapter 51, STRUCTURES GENERAL.



LEFT-HAND POD DOOR SHOWN—RIGHT-HAND SIMILAR



LATCH ADJUSTMENT—TYPICAL



CROSS SECTION—LOOKING AFT

30.02.54.016

POD NOSE COWL - MAINTENANCE PRACTICES

1. Removal/Installation Pod Nose Cowl (see Figure 201)

   A. Equipment Required - Support to hold weight of nose cowl.

   B. Preparation.

      (1) Open and attach warning tags to the following circuit breakers on the main circuit breaker panel:

         (a) NOSE CONE ANTI-ICE VALVES.

         (b) DUCT LIP TEMP OVERHT.

         (c) ENGINE ANTI-ICE VALVES.

         (d) ICE DETECTOR ENG 2 and 3.

      (2) Open and attach warning tags to the following circuit breakers on the avionics circuit breaker panel.

         (a) PILOT & INTPH DC ENG 1 and 4.

         (b) COPILOT & RAD RACK DC ENG 1 and 4.

         (c) FLT ENG NAV DC ENG 1 and 4.

      (3) Open pod doors, install aft pod door hold-open support rod; refer to 54-2-1, forward support rod receptacle will be removed with the nose cowl.

      (4) Open aft fan air inlet ducts; refer to 54-2-3.

      (5) Position nose cowl support to receive weight of nose cowl.

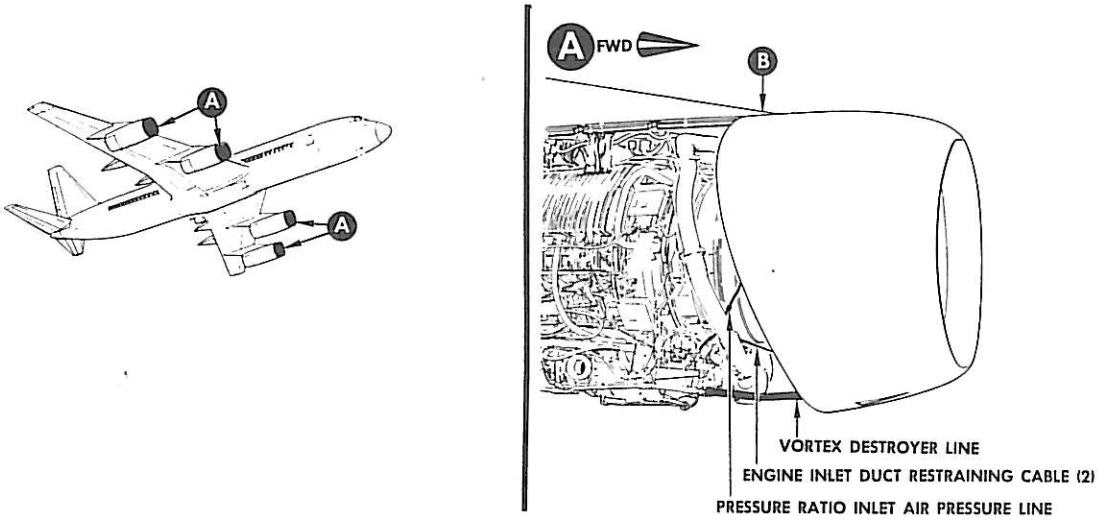
   C. Remove Nose Cowl.

      NOTE: Bag and tag all loose hardware for ease of reinstallation.

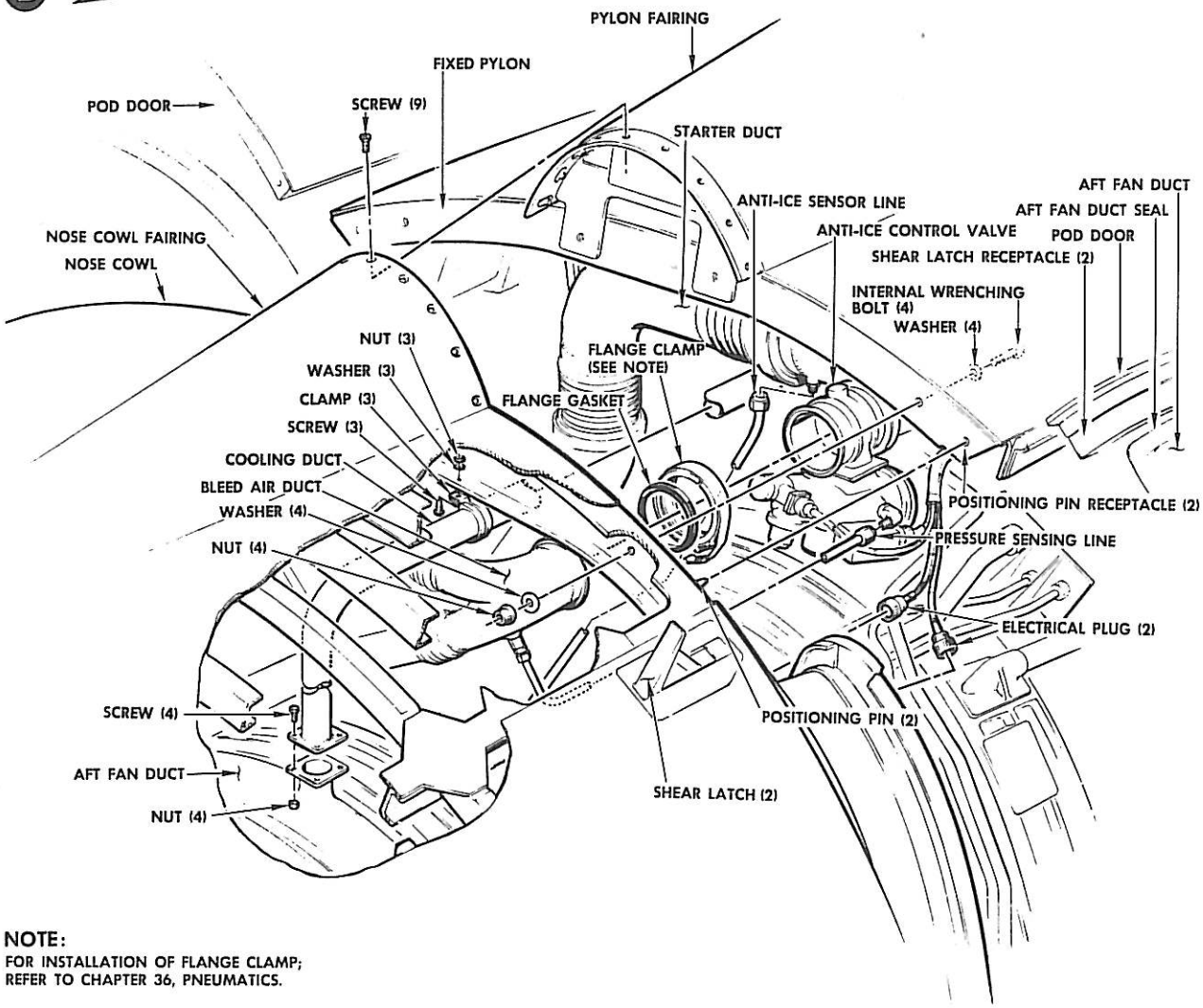
      (1) Disconnect vortex destroyer flex line located on lower right hand side of engine.

         NOTE: Cap all tubing and cover ducting after removal.

      (2) Disconnect pressure ratio inlet air pressure flex line located on lower right hand side of engine.



B FWD VIEW LOOKING DOWN



NOTE:
FOR INSTALLATION OF FLANGE CLAMP; REFER TO CHAPTER 36, PNEUMATICS.

30.02.54.013

INBOARD PYLON SHOWN—OUTBOARD PYLON SIMILAR

AFT FAN AIR INLET DUCTS - MAINTENANCE PRACTICES

1. Removal/Installation Aft Fan Air Inlet Ducts (see Figure 201)

A. General.

Removal/Installation procedures for inboard and outboard aft fan air inlet ducts are identical.

B. Equipment Required - None.

C. Preparation.

(1) Open and attach warning tag to FIRE DETECT SYS circuit breaker for aft fan air inlet duct to be removed.

(2) Release shear-type latches at the upper nose cowl-to-pod forward door edge and upper aft pod door edge; release the tension-type latches along the pod bottom center line. Open pod doors; extend and secure the forward and aft pod door hold-open struts.

CAUTION: WHEN OPENING POD DOORS, UNLATCH THE UPPER POD DOOR FORWARD AND AFT SHEAR-TYPE LATCHES BEFORE UNLATCHING THE BOTTOM CENTER-LINE TENSION-TYPE LATCHES. DAMAGE MAY RESULT IF POD DOOR WEIGHT IS ALLOWED TO HANG FROM UPPER POD DOOR LATCHES. DUE TO DESIGN STRUCTURAL FLEX, MATCH TOLERANCES, AND WEIGHT CONSIDERATIONS IT IS NOT RECOMMENDED THAT THE POD DOOR AND THE AFT FAN AIR INLET DUCT BE OPENED AND LIFTED AS ONE UNIT.

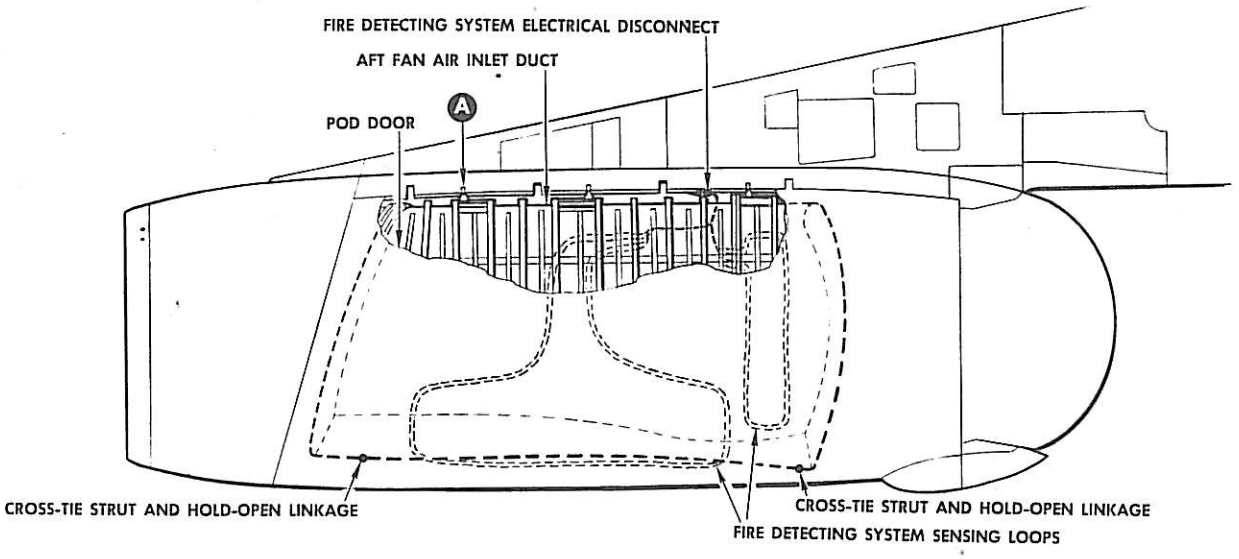
D. Remove Aft Fan Air Inlet Duct.

(1) Release the aft fan air inlet duct cross-tie struts at the forward and aft duct lower edges.

(2) Lift the duct to the fully open position; secure the duct to the open pod door using the forward and aft duct hold-open linkage provided on each duct.

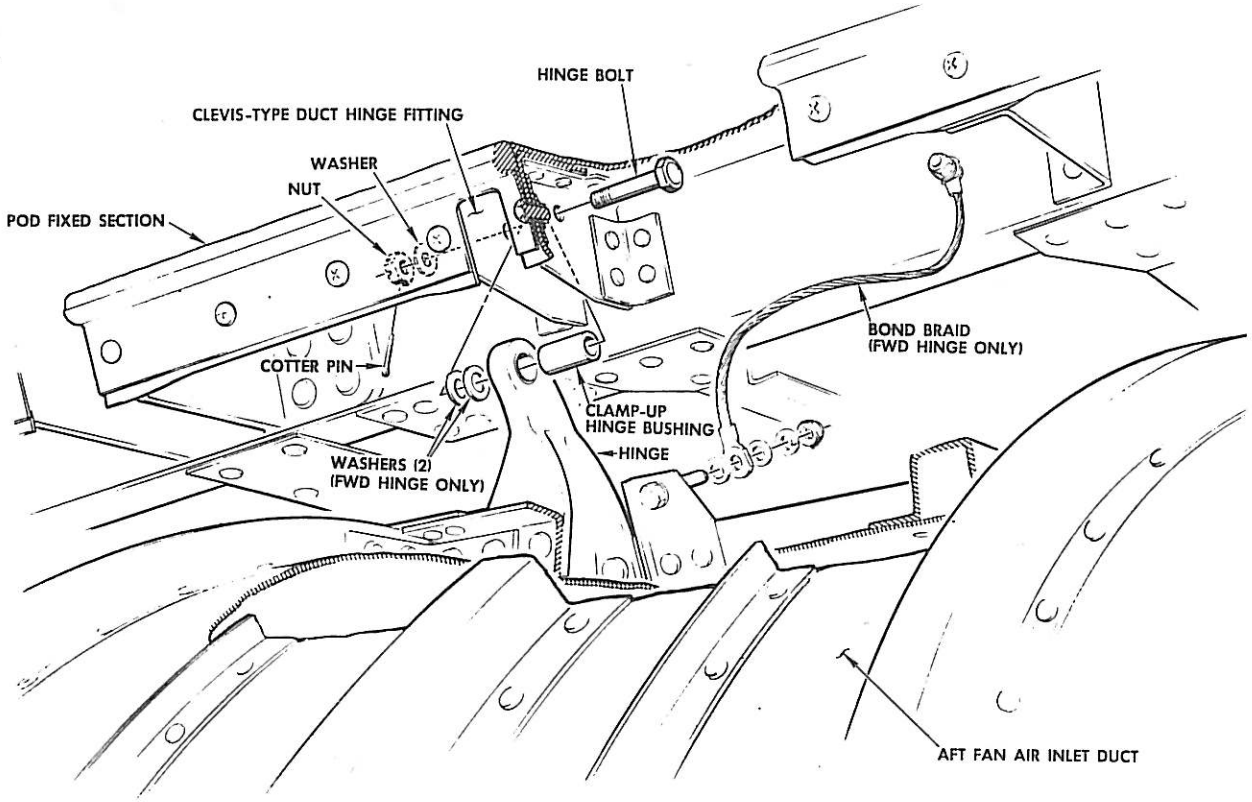
CAUTION: WHEN OPENING DUCTS, AVOID DAMAGE TO THE EXPOSED FIRE DETECTING SYSTEM SENSING LOOPS INSTALLED ON THE ENGINE SIDE OF EACH DUCT.

(3) Disconnect the duct fire detecting system electrical wiring at the plug and receptacle located at the duct aft hinge line; tag and cap plug and receptacle.


FIRE DETECTING SYSTEM ELECTRICAL DISCONNECT
AFT FAN AIR INLET DUCT
POD DOOR
A
CROSS-TIE STRUT AND HOLD-OPEN LINKAGE
CROSS-TIE STRUT AND HOLD-OPEN LINKAGE
FIRE DETECTING SYSTEM SENSING LOOPS

INBOARD POD AND PYLON SHOWN – OUTBOARD SIMILAR

A FWD VIEW LOOKING UP



30.02.54.014

FORWARD LEFT-HAND HINGE SHOWN – OTHERS SIMILAR

(4) Carefully remove and tag fire detecting system sensing loops and connectors; refer to Chapter 26, FIRE PROTECTION.

(5) Disconnect electrical bond braid at the duct forward hinge line; bag and tag hardware for installation. Tag and stow electrical bond braid at fixed pod section attach point to avoid damage during duct removal.

(6) Release forward and aft duct hold-open linkage and return to the stowed position on the duct.

(7) Remove cotter pin, nut, washer, hinge bolt, and clamp-up hinge bushing from each duct hinge and remove duct.

NOTE: The press-fit bushings installed in each duct hinge fitting and each pod fixed section clevis-type hinge fitting are permanent bearing surfaces and are not removed during aft fan air inlet duct removal.

E. Install Aft Fan Air Inlet Duct.

(1) Open and secure pod door in accordance with paragraph C (2).

(2) Align clevis-type duct hinge fittings located in fixed pod section.

(3) Insert duct hinge fitting clamp-up bushings and install hinge bolt, washer, nut, and cotter pin; refer to Figure 201.

NOTE: Washer is installed under nut.

(4) Secure the duct to the open pod door using the forward and aft duct hold-open linkage.

(5) Connect electrical bond braid at the duct forward hinge line.

(6) Carefully install fire detecting system sensing loops and connectors on the duct engine side; connect the duct fire detecting system electrical wiring plug and receptacle at the aft duct hinge line; refer to Chapter 26, FIRE PROTECTION.

(7) Release and stow on the duct the hold-open linkage and lower the duct.

CAUTION: WHEN CLOSING DUCT, AVOID DAMAGE TO THE EXPOSED FIRE DETECTING SYSTEM SENSING LOOPS.

(8) Connect the forward and aft duct cross-tie struts. Adjust duct installation by rotating struts until the forward and aft duct frames make contact with the gage stops provided on the engine stub duct and the nose cowl seal frame. Strut connection will be easier if aft strut is connected first.

CAUTION: WHEN ADJUSTING CROSS-TIE STRUT LENGTH, USE CARE TO MAINTAIN EQUAL THREAD ENGAGEMENT AT EACH END. THIS WILL PRECLUDE AN INSUFFICIENT THREAD ENGAGEMENT AT ONE END OF STRUT.

(9) Remove warning tag and close FIRE DETECT SYSTEM circuit breaker.

(10) Test fire protection system; refer to Chapter 26, FIRE PROTECTION.

2. Removal/Installation Aft Fan Air Inlet Duct Seals (see Figure 202)

A. Equipment Required:

(1) Adhesive C-140, Dow Corning Corp., Midland, Mich., or equivalent.

(2) Aliphatic Naphtha, Federal Specification TT-N-95a.

(3) Plastic scraper for removing old sealant.

(4) Clean lint-free cloths.

(5) No. 180-grit sandpaper.

B. Preparation.

(1) Open applicable pod door; refer to 54-2-1.

(2) Remove aft fan air inlet duct.

C. Remove Aft Fan Air Inlet Duct Forward Seal.

(1) Bend flange of seal frame away from seal.

CAUTION: DO NOT BEND FLANGE OF SEAL FRAME ANY MORE THAN REQUIRED TO REMOVE SEAL. DAMAGE TO BEND RADIUS OF FRAME MAY RESULT.

(2) Remove seal from seal frame.

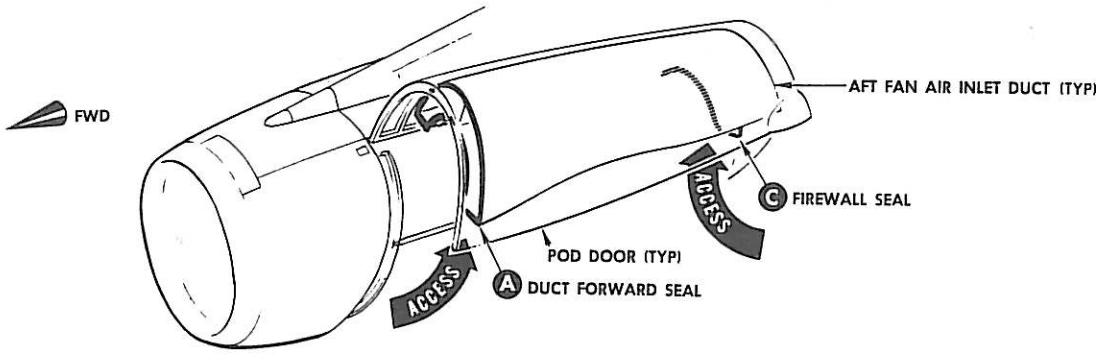
(3) Using a plastic scraper, remove old adhesive from seal frame.

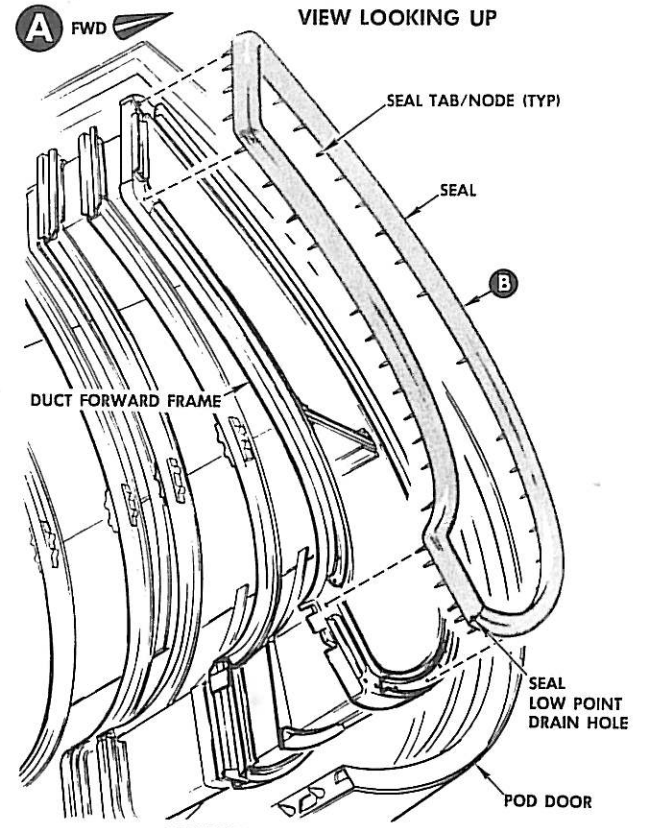
D. Install Aft Fan Air Inlet Duct Forward Seal.

(1) Abrade faying surface of seal using No. 180-grit sandpaper.

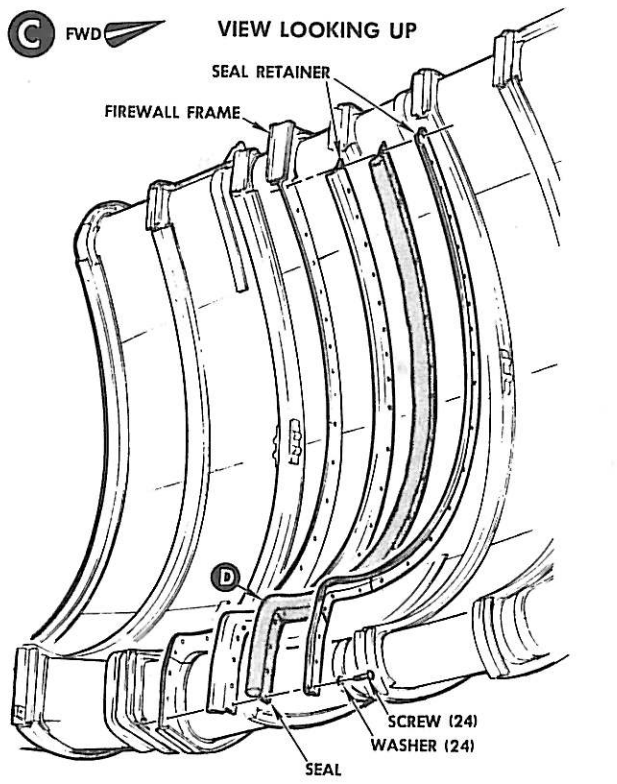
(2) Clean faying surfaces of seal and seal frame using a clean lint-free cloth dampened with aliphatic naphtha.

CAUTION: DO NOT REMOVE EPOXY PRIMER FROM DUCT FRAME OR SKIN SURFACE.

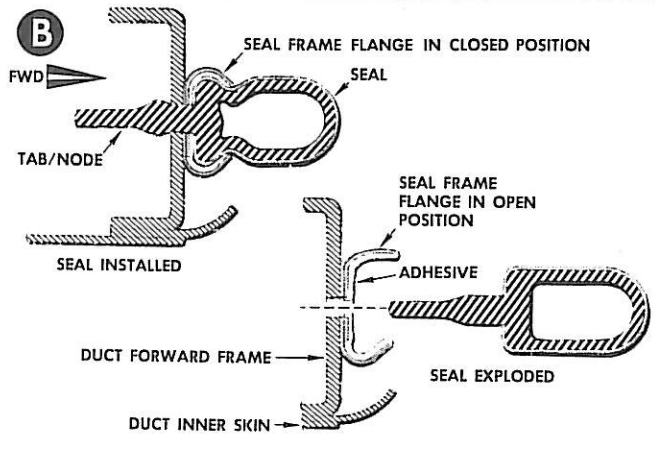




FORWARD SEAL EXPLODED

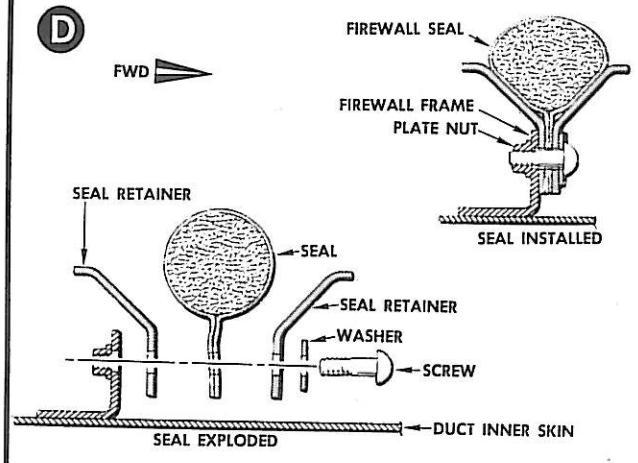


FIREWALL SEAL EXPLODED



30.02.54.017

TYPICAL CROSS-SECTION



TYPICAL CROSS-SECTION

(3) Apply a coating of specified adhesive from 0.010-inch minimum to 0.030-inch maximum thickness to one of the surfaces to be bonded.

(4) With seal drain hole at bottom of duct, position seal in seal frame and pull tab/nodes through matching holes in frame. Press seal in place to remove all air bubbles; cure in accordance with manufacturer's instructions.

(5) Close flange of seal frame over seal.

(6) Install aft fan air inlet duct.

(7) Close pod door; refer to 54-2-1.

3. Removal/Installation Aft Fan Air Inlet Duct Firewall Seal (see Figure 202)

A. Equipment Required - None.

B. Preparation.

(1) Open applicable pod door; refer to 54-2-1.

(2) Open aft fan air inlet duct.

C. Remove Aft Fan Air Inlet Duct Firewall Seal.

(1) Remove screws and washers attaching seal and seal retainers to vertical firewall structure.

NOTE: Bag and tag all loose hardware for ease of reinstallation.

(2) Remove seal and seal retainers.

D. Install Aft Fan Air Inlet Duct Firewall Seal.

(1) Position seal and seal retainers on vertical firewall structure.

(2) Align screw holes in seal and seal retainers with existing holes in vertical firewall structure. Install screws and washers.

(3) Close aft fan air inlet duct.

(4) Close pod door; refer to 54-2-1.